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AN

APPEAL TO PHILOSOPHERS,

&c. &c.

Handwritten notes and signatures at the top of the page, including a signature that appears to read "John Hall" and some illegible text.

VISION IN THE BRAIN

LECTURE TO THE MEMBERS OF THE

NATIONAL ASSOCIATION OF PHYSICIANS

BY JOHN HALL, M.D.

LONDON

PRINTED BY J. B. LIPPINCOTT, 15, N. Y. ST. N. Y.

AN
APPEAL TO PHILOSOPHERS,
BY NAME,
ON THE DEMONSTRATION
OF
VISION IN THE BRAIN,
AND AGAINST THE
ATTACK BY SIR DAVID BREWSTER,
ON THE
RATIONALE OF CEREBRAL VISION.

BY JOHN FEARN, ESQ.

LONDON:

PUBLISHED BY MESSRS. LONGMAN, REES, ORME, BROWN AND GREEN,
PATERNOSTER ROW.

1837.

Chambers

APPEAL TO PHILOSOPHERS,

BY NAME,

ON THE DEMONSTRATION

VISION IN THE BRAIN.

CHELSEA: PRINTED BY W. BLATCH, 23, EXETER STREET.

RATIONALITY OF THE BRAIN VISION.

BY JOHN EVANS, ESQ.

LONDON.

PUBLISHED BY GEORGE LONGMAN, 15, ADELPHI, LONDON, AND BIRMINGHAM.

1857.

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TO THE

RIGHT HONORABLE LORD LANGDALE,

MASTER OF THE ROLLS OF ENGLAND.

MY LORD,

The Institution and Practice of a System of Equity in any Nation, as distinguished from a Code of Positive Laws, is a virtual recognition of the Maxim that, in order to constitute a well regulated Community, there must be a Right provided against every Wrong. And the fortunate concurrence of this truth with the existing fact of your Lordship's now shedding your Auspices over a Great Department of British Equity, indicates the peculiar fitness of my preferring suit to your Lordship's jurisdiction, in a case in which neither any process of Law, nor yet any enactment of Privileged Corporations, can afford to me either justice, or partial relief from an immeasurable wrong.

My Lord ; It is indispensable, to the statement of my case, that I should be permitted to trespass upon your Lordship's notice the fact that, the Individual, who thus looks up for succour, is an Old Man, who has accomplished the ominous and fore-closing age of three score and ten years : One half of which have been consumed in a most arduous pursuit of Abstract Speculations, in an extent which has exhausted more of health, and of life ; not to add relinquishment of fortune also ; than I believe could be truly said of the case of any other votary of the subjects in question.

This averment, I am fully sensible, would be worse than impertinent if it were not borne out, in various quarters, by Public Criticism ; afforded at least impartially, since it is impossible to assign, to any of the Writers in question, any personal knowledge of him whom they so liberally entreated. Although, on the other hand, it is for me duly to acknowledge that the speculations, which have thus been generously entertained, have never been popular in a Country in which PHILOSOPHY, as contradistinguished from Science, has long been a bye-word, except only in the estimation of the few.

In other cases of memorializing; I believe, some specification of services rendered is a matter expected. And, hence, it may be proper for me to state that I am the Author of about a Dozen of Volumes, upon Subjects no less specifically different, in their respective natures, than Natural Religion,—Revealed Religion,—the Philosophy of the Mind,—the Philosophy of Language;—and,—lastly, A Rationale of Cerebral Vision.

The last mentioned of the works, here enumerated, constitutes an entire New Department in Philosophy. And I confess holding this contribution peculiarly precious, inasmuch as it forms the terminating stage of my labors in the Science of Pneumatology, by its being the connecting link, of physical action, between the Percipient Mind and the Extended Things of the External Universe.

The necessity of the case, however, and not any other motive, has obliged me here to mention this nature and amount of Cerebral Optics; inasmuch as the manner in which it has been met, by a Censor of the Press, who also happens to be peculiarly advantaged by Position in the Scientific Community, has roused me, after seven years' endu-

rance of this wrong, involving a virtual death to my literary prospects of every description, to seek justice, if it may be found, against the operation of Power unrestrained,—a justice which, I feel confident, is as vital to the honor of our Country in the face of surrounding Nations, as it is to the endurable onward existence of the Individual who thus solicits it.

As for the probability whether, or not, I view this matter rightly : The lapse of seven years, during all which additional time I have re-examined not only the Subject itself: but, along with it, its unqualified condemnation by an Optical Functionary, who at least ought to be in his Subject ; It may be taken as of some weight that, I move forward with the following Appeal to Philosophers with even increased confidence in my Subject : While, I must certainly be fully aware of the consequence to my own reputation, if I should be found mistaken in my perseverance.

This, of course, is not the place for me to assign the motives of the Onslaught which has in effect proscribed my philosophical existence. But I leave the motives to be judged of by the readers of the following Appeal. And I only here state

that, such an amount of condemnation must have been viewed, by all Optical Functionaries, as both absolving, and on various accounts deterring, them from looking at all into my Work, to judge of it for themselves. And, accordingly, it has followed that the most death-like neglect has attended my labor; insomuch that, I am lost to my generation if I may not find justice at some hand.

If it should be thought that the Subject at issue indicates rather the fitness of appealing it to another Tribunal; especially, when we consider the Urbane Spirit of the Prince whose Auspices now head the proceedings of the Royal Society of this Country; The answer to this is the fact that, the Objects of the Royal Society embrace no consideration of Pneumatological Science. And, even if it were otherwise, the Individual who here seeks redress has never been a Member of that Institution; and, of course, is not entitled to its interference, in any case.

Thus cut off from all other succour; it is certain that the Subject at issue, as well as its Author, must be lost if the Equity of my Country do not interfere to save both.

And here, My Lord, over and above the consideration of an appeal to Equity, abstractly taken ; there is an important specialty in bringing this case under the Auspices of your Lordship. For, While it would be untrue to let it be supposed that I boast the honor of being electly known to your Lordship ; yet, my right, on every ground, to good society, when health has permitted of my availing myself of it, has brought it accidentally within my personal knowledge that your Lordship forms one of the extreme few, who in this Country possess any Tincture of Philosophy, as distinguished from mere Science,—a distinction which renders your Lordship peculiarly fit to apprehend the nature, as well as the hardship, of my case.

But, there is yet another specialty in the case ; which weighs still more in my mind : Which is that I have been collaterally informed, that your Lordship's Moral Nature is such as might be expected to accompany High Intellectual Attributes. And it is this Attribution that has determined me, to throw my case upon the hazard of your Lordship's approbation.

In order to evince my trust in this adoption, I here desire to say that, if I had interest with any

one, who possesses personal influence with your Lordship, I would not accept his proffered mediation : But, would abide the issue of your Lordship's spontaneous decision, as to whether, or not, your Lordship will extend Patronage to my case. And, in expressing this, I may add that, a seeking of Patronage at all, is an event wholly new in my life, through nearly forty years of Philosophical speculation.

To come now, My Lord, to the proximate object of my solicitation ; it is that, through your Lordship's Auspices, I may be commended to the King, to be graciously pleased to confer on me his Majesty's Nomination to that Order, which is appropriate for those who have labored much, and usefully, in the Scientific Community.— As my case at present stands ; it is in the power of any Scientific Individual, possessed of that Order, to inflict a virtual death upon all my labors, of every kind. And, when called upon for any explanation, either of errors, or injurious imputations, to avail himself of the plea that, an unaccredited Writer has no right to a reply. And, under this revolting shape of philosophical despotism, which in fact wields a power beyond that of Law, the most

important contributions to Science, no less than the most useless, must (over and above the wrong done to individual claims) be no better than a dead letter in the philosophical community.

It is past denial, therefore, that nothing is left to save me from certain uselessness, and as certain despair, but that I should possess a sign of my Sovereign's approbation, as a bar to any such plea, on the part of any one, as that of being exempt from all responsibility when my literary destruction is effecting under the cover of such a proceeding. It is not my presumption that your Lordship's eye should light upon the details of the following Appeal. But, if any person should be assigned that office ; I cannot doubt, but his anticipation will be far exceeded by what he will see of usurped power to inflict bane upon the labors of an opponent.

In fartherance of my plea for the honor of such recognition as I would thus attain ;—I may venture to allege that, One Third Part of the Mass of Original Matter, which makes up my Published Writings, might fully justify my hopes, if compared with the labors of any other Writer on Subjects, equally abstruse. While the fact of my never having entered into a canvas to be elected a member

of the Royal Society; (in which, I suppose, I might have succeeded ;) is a proof that I have not been given to put myself forward, in any way, until the necessity of the case became urgent beyond all endurance.

My Lord ; As a make-weight, in my very extraordinary case, I am induced to throw into the scale the following mention of some circumstances in my early life ; for a purpose which will explain itself as I proceed.

Descended sufficiently well ; and of Parents whose Excellent Virtues I desire in this late record to embalm, out of gratitude for the example of honor which they set me ; I at a very tender age willed to commence life in the Royal Navy : And, among other changes, served two years a midshipman on the quarter-deck of the Royal George,—a First Rate Man of War ; which now, more than half a century, lies accidentally sunk at Spithead. If this narration should serve no better purpose ; it will at least show that, in my cast to Philosophy, I have not exchanged from any sordid bent : But, have always done homage to creditable aspirations. Nor did

I relinquish my first choice from any fickleness of affection ; until the termination of the then existing war cast me, with many others, upon the world of chance.

But, the reason of my thus trespassing upon your Lordship's notice this otherwise insignificant matter, arises from the circumstance that it was my lot to serve in the grand fleet when his Gracious Majesty served his Country in the same. And I have been among those who were present on duty, when his Royal Highness has visited my Admiral.—This last mentioned honor, I am fully sensible, amounts but to a very slender claim to his Majesty's favor, or recollection. But it serves my purpose to found upon it a hope with reference to my present case. The fact is ; we had it in the Fleet that his Royal Highness was of a Generous Nature, and loved that attribute of fairness which so peculiarly marks the character of our Country. And I do not believe that the intercourse of the world has made His Majesty throw off this feature of his early nature. Hence, I have been led to cherish a hope, that the King would not turn a deaf ear to the hard case of one who has had the honor to serve in the same fleet with his Majesty ;

more especially, when I reflect on the time, near sixty years, that has elapsed ; and, how few of the gallan spirits of that day now remain, to share of good at his Majesty's hand. And, I trust it adds to this plea, when I state my transition, from a Competitor for Naval Glory, to an Aspirant after Philosophical Attainment: And this, as it should seem, led by the finger of Providence ; since Providence, and not my forecast, or wish, brought it about.

And now, My Lord, the Object of my solicitation for your Lordship's Patronage is expressed. And all that I would presume to add is to express that, a manifestation of your Lordship's Sympathy with my cause would prove a tower of strength to my saving : Since it is certain that your Lordship's High Station in the Community ; and Philosophical Competency ; and Moral Nature ; form, together, a Warranty to the World, that any such case, if protected by your Lordship, must have justice on its side.

One consideration, indeed, remains to be thought of, here ; Which I would presume to name :— Which is that, if it shall please Almighty God to permit ; I have yet more work to do, and part of which has some years been in a state of advance-

ment.—But, My Lord, I believe no human fortitude could continue to labor on, under the depression which I have encountered. And, hence, I have only the prospect of being obliged to destroy, what I must not leave partly done to the hazard of being misapprehended. This prospect, indeed, presses on my mind. But, it is for me to pray that the Will of God be done.

My Lord ; When an impartial Posterity shall come to adjudge this case ; I hope it will have to acknowledge that there was at least ONE Contemporary Spirit that did sympathize with it. But, if it should prove otherwise ; then, it is for me duly to acknowledge that, I have no special claim upon your Lordship, other than that which I have coined out of my Estimate of your Lordship's Nature. And all, then, that is left for me, is to express the irrepressible feelings of outraged Human Nature.—My Country has been to me an unfeeling Step-mother. I owe Her, indeed, for the common protection of Her comparatively excellent laws : And, I hope, I have not been insensible to the debt.—But the account is not equal.—More than One Competent Critic has declared, in More than One Science, over and above that of Vision in

the Brain, that I have presented Her with Things which She will accept when I am beyond the feeling of thank. And, in reward of this, She has left me to linger on, a living death : which Almighty God, alone, can give me heart to support : and, under an incapability of following that Course which has long been identified with my tolerable existence.

And now, My Lord, With more pain of regret for this trespass upon your Lordship's Philanthropy than words would serve me to express ; I have the honor to subscribe myself

With Profound Respect,

Your Lordship's

Most Obedient

Humble Servant,

JOHN FEARN.

THE APPEAL.

TO THE FOLLOWING named Gentlemen, individually considered; This Appeal is, with all respect, addressed by the Author.

AND, DULY FIRST; TO THE BRITISH FEMALE ASTRONOMER, MRS. SOMERVILLE. And, to the others in Alphabetical Order: with due apologies for the unavoidable omission of their Additions;—namely, PROFESSOR AIRY, *Astronomer Royal*;—PROFESSOR BABBAGE;—BELL, SIR CHARLES;—BAILY;—BARLOW;—BEAUFORT;—BAUER;—BLAKE;—BRISBANE, SIR THOMAS;—BROOKE, A.C.;—CHRISTIE;—COLBY;—GILBERT;—DOLLAND;—IVORY;—HERSCHELL, SIR JOHN;—DR. ROGET, *one of the Secretaries of the R.S.*;—SABINE;—LUBBOCK, SIR JOHN;—PEACOCK, THE REV. GEORGE; SHEEP-SHANCKS, THE REV. RICHARD;—SOUTH, SIR JAMES;—WILLIS, THE REV. R. — AND, EQUALLY, TO ALL OTHER BRITISH NAMES OF THE SAME CLASS; in case any such have been unintentionally omitted above: Whose Moral Responsibility to their CONTEMPORARIES, and to POSTERITY, IS INCLUDED, WITH THAT OF THOSE WHO ARE NAMED.

GENTLEMEN.

GENTLEMEN.

AS IT IS MANIFEST THAT, TAKEN COLLECTIVELY, YOU CONSTITUTE, AT THIS moment, the Effective Genius of British Optical Philosophy : And, as it is certain that the generations of men, who shall come after us, will require at your hands what has been done for the interests and honor of Optical Science, under your united auspices : While it has become, alike, my duty, and my resolve, that this Appeal, together with its scientific results, shall go down to its future judges, incorporated along with other works, whose nature shall prevent the present Subject from being comparatively locked up in the Archives, or Contributions, of the Single Science in question : It is with peculiar propriety that I address you on the Proofs, and Philosophical Consequences, of the discovery of a Visual Mechanism, and Process, within the Head, — a Subject which it has formed a material and arduous portion of my life's labor to substantiate : But which has, since then, languished in obscurity, a dead letter in philosophy, during a portentous period of no less than SEVEN YEARS, owing to a Cause which will be explained in the course of the following statements : but, which could not have thus operated unless it had found an aspect, or a tacit supposition, of a VIRTUAL SANCTION in the mere fact of your total silence with regard to the existence of any such thing.

In noticing this silence, however, I by no means intend to impute to you any unfit neg-

ligence; inasmuch as it is certain that, owing to adverse health, and other untoward circumstances, I have never forwarded Copies, of my Treatise on the Subject, to by far the larger number of the Names whom I have now the honor to address. And, I deem it very probable that many of you are not yet aware of the existence of the Work : and, far less acquainted with its nature, or contents.

And, here, I expressly provide that, I do not address you as Members of any Corporate Philosophical Institution. Which, if done, I am aware, would be irregular ; and such as could not be answered by an official functionary of any such corporate body. But, I address you as Individual Members of the Human Community at large. And I hardly need say that, you owe to this Tribunal a Paramount Duty, over and above that of any special corporate office, to which any of you may belong. And, now, that the Public Mind is altogether surcharged with the proceedings, and the public merits, of all our Corporate Institutions; I may, with peculiar force, put the question,—If it shall be your election, that your Names shall go down to Posterity as having sanctioned, what I can here only designate as a, to me, most baneful Mis-view, publicly uttered by an Authority under the sanction, and advantage, of being a distinguished member of your own order.

As for the Case, in other respects, of the Individual who thus solemnly throws his Cause upon your Justice; it is, certainly, a most peculiar one. And here it is proper I should intimate that, in my

not adding to my name the Honorary Letters which denote a Writer as being a member of the first Scientific Society in the Realm; I am not to be viewed as undervaluing that Distinction. The general state of my health, during forty years: and, still more than this, the untoward fact that the Science of Pneumatology, in which I have exhausted my life, is not one of those that are comprehended among the departments acknowledged in the provisions of the Royal Society: both these causes have always prevented my going into a canvass, for the honor of writing myself a member of that illustrious body. But, under this unavoidable disadvantage; I will here put a case in point, for the favor of your consideration.

Suppose a Foreign Stranger, from some far-off country, as if it were Central Africa, were to visit your shores; and, were to bring with him an effective cargo of some New Department of Science. Let this supposed Department be no less than a *Rationale of the Physical Intercourse between the Percipient Mind and the External World*. In this supposed case; which, in fact is, with a wonderful juxtaposition, no other than the case of the individual who has now the honor to address you; What would be said, if your whole Collective Body were to draw up; And, standing upon the Privilege of your Monopoly in the office of awarding the merits of scientific men, were to proclaim your rejection of the offering in question, UPON THE PLEA THAT IT CAME NOT FROM A MEMBER OF YOUR COMMUNITY? In the present hour; if such a blazon of illiberality were pro-

duced to the astonished world ; I may ask, What would surrounding contemporary nations say, on beholding such a spectacle? But, far beyond the Sentence of the present generation ; What would the indignant Spirits of Posterity say, of such a manifestation that, NOT THE WEAL OF SCIENCE ; but only elevation, or self advantage ; was the actuating principle in the highest of our Philosophical Institutions ?—I trust that this supposed case ; Nay, indeed, I may truly say, THIS ACTUAL REAL CASE ; presents a call upon your Equity ; and, also ; upon your fame, and best policy ; which cannot fail to find a fit response in your own bosoms.—I, indeed, have a fearful weight of interest ; no less than a whole life's labor, and hopes, depending upon your decision, to award, or not, a Sentence on the Case.—And, I appeal it to You, under Heaven. —And, if need shall be, to Heaven above you.

And here, as it is my design to comprehend, within the brief compass of this Appeal, a MINIA-TURE COMPENDIUM OF THE SCIENCE OF PNEUMATOLOGY, as it is now newly arising from an explosion of a by-gone Scheme of the subject ; and the Advent of which is comprised in a *Demonstration of the mutual interlimitations of our Sensations of COLORS*, at any time when MORE THAN ONE uniform sensation of color co-exists in the Percipient : which fact, of a plurality of colors, is the *usual* case in the daily business of our visual intercourse with the External World. Which purpose, of supplying a Compendium, I shall here execute ; in case this may prove the last contribution which the hand of Time shall permit me to offer to my contemporaries.

And, with the hope that the thing proposed MAY RESUSCITATE an interest, or beneficial curiosity, in my Countrymen, to examine the nature of a New Scheme which, at the least, is of a complexion infinitely different from that which is exploded; and which had long wearied out the patience, as well as destroyed the confidence, of Englishmen.

In execution of this design, therefore, I shall present the subject with a description of the earlier links, of the chain of my life : Although, in so doing, I must mortify my pride, by proclaiming my want of all pretension to scholastic advantages, or honors ; or, even, so much as to the merest smattering, or initiation. I may premise here, however, that I would not have submitted myself to this humiliation, but from a conviction that the fact involved bears, with very momentous effect, in its application to the PHILOSOPHY OF THE MIND,—a matter which will explain itself as I proceed ; and which, I suppose, constitutes a valuable present to philosophy at large.

The fact of my Case in question is that, upon my relinquishing a self-chosen course of life in the British Royal Navy ; I was, together with many others in the same case, by the termination of the war, and the occurrence of peace, in the year 1783, set at large : And I thereupon bent my way to a far distant region of the world : Where, at a very early age, in pursuance of my Maritime Profession, I had command of a Ship in several enterprises ; and, amongst others, in a Voyage through the Pacific Ocean. In the course of which last, I made the accidental discovery of some small Islands,

and extensive shoals; an account of which I duly communicated in a proper quarter; and, which are since laid down, in the charts of those regions, as minute features of the earth's surface.—The principal addition to my stock of knowledge, laid in during that voyaging course, indeed, was in an extensive and varied witnessing of SAVAGE LIFE,—a field, however, in which a Philosopher may gather very valuable materials for his purpose.

Having followed this maritime life, some years; I was, at length, induced to take up a very different course of action, in occupying a position in the Interior Regions of one of those Lands: in which situation, I was in a peculiar degree cut off from all but some very rare occasional intercourse with European life, or Civilised society. The intent of my recording these changes, of pursuit and of situation, is, as I have already intimated, their bearing upon the present state, and I trust the advance, of Mental Philosophy. Which department of knowledge, undeniably, is by far the most important pursuit for the interests of our Species, both with regard to here, and to hereafter, provided only that the Subject has been; as I now confidently proceed upon the conclusion that it HAS been; reduced to the stable form, and foundation, of a Strict Analytical Science.

In pursuance, therefore, of this last mentioned conviction; I have NOW to observe that, the intellectual situation of any person, who has attained a NATURAL MATURITY OF UNDERSTANDING, before his mind has begun to be *tampered with by the Schemes of Philosophy, both Ancient and Modern,*

which have been, at various times, exhibited for the acceptance of mankind, *must be far more competent to the task of judging between conflicting Theories*, than if his mind had been vitiated by imbibing this, or that, Scheme of the Subject before it had attained natural strength to digest the sound, and reject the unsound, speculations of his Teachers.

Now, this solitary advantage, if such it is, I have certainly, and most largely enjoyed, under the want of every sort of Scholastic preparation. And, it is upon this plea alone that I ground my principal pretension to the philosophical consideration of my contemporaries. In this my lone and long seclusion, and unfledged state with regard to the Wisdom of the Schools; it happened that I possessed ONE Precious Guide, in possessing LOCKE'S ESSAY ON HUMAN UNDERSTANDING;—a fortunate accident, which gave to my mind its first cast towards Philosophy.—For the rest; I suppose, I had some natural bent to the habits of reflection. Which germ, however, I think, might never have expanded into any material fruits if, instead of being situated as I then was, I had been in the habits of bustling life; and, to a *laving down* of abstract thoughts, in the daily intercourse of civilised society.

As it was; the actual tenor of my life was nearly on a moral level with that of the wild animals which were in fact my neighbours, and acquaintance, in the sylvan region which I then occupied. My daily amusement, during a series of years; (for the effecting of my pecuniary fortune

went on almost of itself;) was that of riding, frequently, upon an elephant, or on horseback; and invading the repose, and disturbing the life, of the Wild Boar, and the Buffalo, in their lairs: Together with a varied, and most unsparing, slaughter of the lesser animals which Providence had subjected to my truly savage propensity. This life, to be sure, was the boasted life of a SPORTSMAN: Although it was, certainly, no sport to the ill fated Things which were slaughtered; not as if it were by the Tiger, in order to allay the cravings of his natural appetite; but, because it was, in fact, exhilarating to the spirits: And, very often, bore some semblance of war, in the frequent danger of encountering enraged and formidable opponents.

Curious it was, that, in the course of such a life as this, I found a strong and irresistible bias toward MENTAL PHILOSOPHY. For which, however, there can be no doubt, I was indebted, in part, to the fact of my embibing the Spirit of Locke's celebrated Essay. Certain, at least it is that, in my solitary sylvan course of barbarous existence, I found in the real and appalling forms of surrounding Nature, a true substantiation of the fancy of a Writer who had owed as little to teaching as myself.

"TONGUES IN TREES:—BOOKS IN THE RUNNING BROOKS.
"SERMONS IN STONES; AND GOOD IN EVERY THING."

Here, by the way, justice to a much-wronged Philosopher calls upon me to avow, concerning the Pneumatological Speculations of Locke, that I derived from them great and impelling benefit

and obligation. It is true, the philosophical course of our illustrious countryman cannot be defended against the charge of being frequently inconsistent with itself; and, with vacillating, to an extreme degree, in the *would-be logical* tenor of his reasonings and illustrations. But, in the BETTER views which he entertained, however they were mixed up with the alloy of his inconsistencies, he has taken his stand upon a rock which can never crumble under his feet. Accordingly, therefore, I have always, from the beginning, yielded to him my assent, and adhesion to his better grounds. And, in fact, my own stated Laws of Primary Vision, which are ALL IN ALL IN PNEUMATOLOGY, are but an ANALYTICAL DEVELOPEMENT, AND DEMONSTRATIVE RATIONALE, of his *assumed*, though *vague*, and in *that form* UNAVAILABLE GROUND, where he affirmed the SIMPLE FACT that, COLOR (by which he meant no other than that SENSATION OF COLOR) CANNOT BE WITHOUT EXTENSION.

The work of an after generation; that of uttering animadversions upon, and holding up to contempt, the DROSS of Locke's Essay; with intent to invalidate the gold of his better views; was an act of no more difficulty, than it was of praiseworthy merit. And, although it has well served its intended purpose, during a long era, in a politic manifestation of metaphysical opposition; I have, for my own part, always proclaimed my due gratitude to the merits of the English Philosopher: and this, whether, or not, he be supposed to have borrowed, from another writer, some important features of his doctrine. At the same time; it is certain that, I am not

either his disciple, or his follower: Because, I have differed from him, *no less than infinitely*, in several of the most important features of Pneumatological Science; as a single instance of which, I may here mention that of our two opposite, and incompatible, respective schemes of the CATEGORY OF RELATION: He following the Aristotelian Scheme of the subject: While I have suggested, and largely elaborated, a Scheme of COMBINED RELATIVES and RELATION; which Subject occupies a very extensive, or rather comprehensive, feature in my estimate of the STRUCTURE of the HUMAN INTELLECT.

There is one fact, of sufficient notoriety for its truth; and, which is manifest in its operation upon public interest, or rather in producing a want of public interest, and a deplorable apathy, in the case of Cerebral Vision: And which, therefore, I must duly place in the view of all readers of the Subject, with intent to suggest, and to urge, the IRRATIONALITY of the thing; even though we should grant the MARKET wisdom displayed in it. The mischievous fact, to which I thus call attention, is the general opinion that Vision in the Head, if it be proved, is *not a Science which can produce ANY MARKETABLE benefit to mankind*. Against this way of reasoning, however, I may state at least two very cogent arguments.

First.—One should think that no philosophic mind can hold Cerebral Vision to be valueless, from its present want of commercial products: because,

from the probability that a Science of so comprehensive a scope must, one day or other, bear upon various commercial products : and, even, without bringing in this stimulating consideration ; no philosophic mind would deem it creditable, to human reason, to argue within so contracted a sphere. Besides these considerations, moreover, I have here to urge the fact that, Sir Isaac Newton, and his illustrious associates, have manifested a plenitude of interest in the subject of vision in the brain,—an event in the history of the subject that cries out upon my thought of a General Apathy on the Advent of a Province of Philosophy which had been so *ardently sought*, and in fact *anticipated*, by those illustrious persons.

But, *Secondly*, here.—There is *One* Commercial Consideration, to be mentioned in this place ; which probably may ; although, also, it probably may not ; present an object of market interest in Cerebral Vision. And, I shall at least announce the thing here, in case any Optical Philosopher will afford it his attention ; as it is not in my power to follow it farther than this hint. But, even, if this matter should be productive of no commercial fruits ; still, the very fact of its occurrence affords at least an indication that, other fruits of the same kind may grow from Cerebral Vision.

The matter, to which I thus allude, is related in the course of an investigation ; the details of which form a “*Second Supplement*” to my Rationale, under the title of “*The Sensorium Investigated as to Figure, by a Course of Pressures*”

on the Eyes.” And, the fact itself is that to which I have been led to assign the name of “*The Sensorial Aberration of the Eyes.*” And some notion of this fact may be gathered from the following extract from the Rationale.

“The most considerable, of these remaining difficulties, *is the* WANT OF A TOTAL *coincidence, laterally taken*, of the impressions from both the cranial eyes, in their respective discharges upon the Sentient or Percipient Mind: Or, in other words, the difficulty consists in the fact that, the *Sensorial Field, taken in its lateral extent, is not wholly common to impressions from both eyes*; not, even, when the eyes, and the pressures, are so disposed as to produce the *greatest practicable approximation* to a total coincidence.”

It is not necessary to insert more of these extracts, as the Rationale itself may be consulted by those who wish it. But, there is much more in it, on the same subject. And the *application*, which I shall here make of this fact, is to call attention to the *existing state of the Art of making Binocular Telescopes*. From some cause, or other, those instruments are found useless, when applied to Astronomical Purposes. Now, the question here is; Could it be possible to improve Binocular Telescopes, for observing the Heavenly Bodies, by adapting those instruments to the *Lateral Aberration of the Sensorial Color Images*, as I have above described it?—And, having thus suggested this hint; I shall leave the matter to others, if they choose to consider it farther. In fine, enough ap-

pears to justify, fully, a hope that the Department of Vision in the Brain may have *marketable products*; *altogether besides* its *Pneumatological*, and other *Philosophical* products. There can be little doubt, but, when Sir Isaac Newton FRIED the *Optic Nerves*; and, tried other experiments with a hope to gain light on the subject; he imagined that *some* discoveries, useful to practical science, might come forth from such labors.

By the way; I notice here that, in the *Rationale*, I suggested a hint, in what way a variety of Toys might be constructed for amusement, upon the principle of *Two-Eyed Vision*. And, since the publication of the *Rationale*, there are actually several such Toys selling in the shops. And, as it is certain that neither Newton, nor any other Writer, has ever admitted the fact of *Two-Eyed Vision in the case of Man*; or, in that of any Animal whose eyes stand in front of the head; it seems hardly to be doubted, but the Toys in question are such as I suggested.—And here, I merely add, that a variety of other Toys, of a very amusing character, might be contrived; besides those which I have seen, as above mentioned. And, perhaps, some of these might not be altogether devoid of scientific utility.

At the same time, nothing can be more wonderful than the denial, by Opticians, of *Two-Eyed Vision*;—since we have only to apply our hand, edgewiseto the Nose; and we shall instantly be convinced that the Grandest, and Most General, Mode of Vision, is that of seeing One Half of our Whole

Field of Objects with One eye ; and the other half with the other. The mistake in question is so equally surprising, and important for the mischief incurred by its admission hitherto in all optical speculations ; that I deem it duly effective to mention it repeatedly, in casesome readers might otherwise suspect that, in my optical writings, I have fallen into some mistake inthe matter. But, certain it is that, not only Sir Isaac Newton ; but, also, various other Writerson Optics ; and Medical Authors in discoursesofthe eyes ; down to thelatestdate ; have severally assumed that, we employ both eyes never but as one Organ. Andthat, theonly use, and Final Causes, of our having two eyes, is in case that the sight of one of them should, by any accident, be destroyed.

The Oversight in question is, certainly, the most extraordinary, as it has also been the most detrimental to the advance of Optical Science, of any in the whole history of the subject. And it is, even, the more wonderful from the certain known fact that, if perhaps twenty persons look, intentionally, atany object with both eyes ; notoneofthewhole twenty can see it with both, because some accident, or a mere acquired habit, has rendered one, or other, of their eyes less effective than its fellow. And, to crown all this ; it is a certain fact that, many persons have made the discovery that they had been blind of one eye during several years, without their ever having suspected their defect.

Wonderful, it certainly is that, such as I have now described has been the past state of our

knowledge of our visual constitution. Not only all the Vulgar Mass of our Species; but, also, all our Philosophers, in their teachings of the subject; confidently believing that we see objects with both eyes. While no truth in Science is more certain than that, our Grandest Mode of Vision consists in viewing the Creation, in any present Unlimited Field of Vision, One Half of it with One Eye, and the Other Half with the other.

But I pass on now,—to a very different subject of Consideration.—Over and above the untoward operation of the general prejudice, that the Advent of a Science of Vision in the Brain can be productive of no marketable fruits, or consequences, in the community;—there exists yet another general opinion, or assumed scientific principle rather, in the Optical World; which is, to the last degree, hostile to the reception of Cerebral Vision. The mischievous supposed principle, to which I now allude, is the assumed Principle of the Visible Direction of seen objects from the eye. The discussion of the merits, and claims, of this So-called Principle, therefore, must be the business of the present section; in as much, as it is a stumbling block in the subject: Although, fortunately, notwithstanding the deep root it has attained in the general opinion, there is no Proposition in Geometry whose truth is more rigorously demonstrable, than is the falsehood, or unreality, of the assumption that we see External Direction.—In order to introduce the merits of the thing; I must here advert to the CHANGE, which is introduced into the

nature and division of the departments of the Science of Optics, by the Advent, or Accession, of Cerebral Vision.

First, therefore, I observe that, Since the late accession to the subject, the Science of Optics stands divided into two great, and vastly different regions or departments. One of these is EXTERNAL (or what I have called LUCERNAL) Optics, namely, that which comprehends the incidence of rays of light upon the retina of the Eye. The other, comprehends the *Nervous Mechanism which is situated behind the eyes*: And this last I have, consequently, denominated *Cerebral Optics*. Now, there is no denial here, that, in the Department of External or Lucernal Optics, there is a real and true Principle of the *External Direction* of objects from the eye. This, in other words, is the *principle of the converge essence of the rays of light ; and, of their crossing each other*, until they ultimately fall upon the Retina. And, it is certain that, the retinal impression, from any point, of any external seen object, is *opposite, in a straight line*, to that point of the external object which reflects the ray of light upon the retina. But, while all this is here fully granted, and provided for ; *the grand consideration that is vital* to the nature of Optics here, is that, although the external direction of the object is a true principle ; *still, it must be remembered that, we never SEE* this External Direction. It is an external known fact, from deduction,—a fact of *calculation* ; *but it is never a fact of vision*.

So far am I, indeed, from being entirely alone

upon the ground now asserted ; that there are, at least, two other writers who have taken up the same ground. The first of these whom I shall notice here, was Mr. Crisp : whose Treatise, notwithstanding it contains some points of considerable merit, has found its way to oblivion. Mr. Crisp asserted that, the *retinal place of a seen object* is its *relative place* on the *retina*, compared with the retinal places of other objects imprinted on the retina, and seen at the same time. And I consider him as having been aware of the real fact of the subject, in this instance. But, this fact evinces, beyond all question, the grand truth that, it is the MIND, *from behind the eye*, that thus sees objects in their relative retinal positions, in the case of any field of objects that are seen at any same time.

The next other writer, who has taken up the same ground, is no less a reputed Optical Adept than Sir David Brewster, in his announced proposal to the world, expressed in his "*Natural Magic*," to show that all Visible Objects are no other than the *impressions* of the *Rays of Light* that are PRICKED upon the Tablet of the Retina.

Thirdly.—To be classed here, so far, with the Two Writers already mentioned, is the case of the Individual who has now the honor of addressing you. But, with regard to my estimate of the subject; a most momentous distinction is here to be made, between the fact of our *perceiving objects in their relative positions on the Retina*, and any supposition that any *true identical or immediate* object, which we ever perceive, is an impression on

the Retina. The certain contrary of this, or the grand pneumatological fact is that, the *only objects we ever perceive are our own sensations of colors, demarked and interlimited by each other*, in the mind.

But, since I began to write this Appeal, I have become possessed of a fact of the most conclusive importance, as bearing upon the subject at issue. An American Lady, Mrs. Griffiths, has addressed a short communication to Sir D. Brewster, which he has inserted in his Journal for *January*, 1834: in which, that lady relates having, one morning, with the *yet unopened eye*, seen the *Retina* and its vessels, presenting a most beautiful spectacle. And Mrs. Griffiths, very cogently, remarks that the THING WHICH SEES THE RETINA, MUST BE POSTERIOR TO THE RETINA. This very novel and surprising revelation of sight is, most certainly, of itself alone, decisive of the fact that we NEVER SEE *the Impressions* of Light upon the Retina. And, to confirm this ; and to stamp it for a Principle in Optics ; Sir David Brewster, in a paragraph at the end of Mrs. Griffiths' Paper ; while he objects to some of the minute features of her description ; *fully assents* to the important fact in point. And it appears that both he, and others have seen the same revelation of the retina, with its vessels.

Now, While this fact proves, for ever, the *annihilation or explosion* of the heretofore asserted *Principle of the Visible Direction of Objects* ; it seems wonderful that Sir David Brewster does not appear to have drawn from it the *certain annihilation of his projected Pneumatology in the Eye* ! But we are to

remember that Sir David had commenced his Project in the year 1832 ; Whereas, Mrs. Griffith's important discovery did not occur until 1834 ! Can it, then, be doubted that, after this decisive discovery, I go forward in the confidence that the supposed Principle of *Visible direction is an exploded Principle*. And that the truth of a *Science of Vision in the Head is established by the single fact* of Mrs. Griffith's discovery, alone.

To proceed, here, it is plainly to be understood that, when the nervous mechanism in the brain has called up, or occasioned, in the mind, a visual picture; the various objects in this picture *will possess relative places*, (with respect to all the other objects seen at the same time,) *corresponding* with the relative places of the various impressions upon the eye or retina, and which retinal print was the physical occasion of our having the vision in question. And, attending to this view of the subject, Mr. Crisp was right as to the *initial or precursory* optical fact. But, certainly, he had no guess, whatever, as to the Ultimate or Pneumatological Fact of Vision. Sir David Brewster, on the other hand, assert, that, not only the retinal impulses from light; but, along with these, the *Color Images of the Mind, themselves*, are part of the *Furniture of the Retina of the Eye*. Whatever may be thought of the respective claims of the two Schemes in question; it is certain that no less than the distance of infinity, at least, exists between their two respective natures.

To afford here an Analogy of the process of Vision, as it exists in Nature ; I shall transcribe

that which I have supplied in my *Rationale*, in treating of the “Principle of *Coincident Images*,” and, in other parts of that work.

“Over and above the gift of Two Cranial Eyes, man has been, by his Adorable Creator, endowed with an *Internal Central Organ*, which performs the Office of a *Third Eye* by being the *Common Recipient* of impressions propagated either from one, or from both, of the external eyes. And the Mind, in her Chamber of Percipience, steers with regard to external objects on the same principle on which the mariner steers by his compass. Thus the two cranial eyes are analogous, in principle and situation, to two magnetic compasses placed upon a ship’s deck: while the third, or cerebral eye, represents another compass placed in the cabin below. And the mind, situated like the Captain Mariner in his cabin, knows, from consulting the central eye, upon what point of direction the body is steering: Although, the Mind no more perceives any external object, nor yet any imprint in the cranial eye, than the Mariner perceives, (even in the vulgar import of the word—*perceives*—) the far off land, or haven, toward which he is surely making his way.”

This Analogy I have again supplied here, in as much as I conceive it is strikingly true to the real nature of the subject; and conveys, at a glance, a glimpse of the whole *Grand System of Mechanism*, by which we are, for our own benefit, cheated into a confident belief that we *see the External World, which, most certainly, we never do see*. Nor is

there, perhaps, any other knowable work of God, that calls more loudly upon our adoration of him.

THE USHERING IN (*for the present occasion*) OF
THE FACT OF RECROSS VISION.

It is known that Sir Isaac-Newton has noticed the appearance of that Visual phenomenon, which he likened to the *Spot in the Feather of a Peacock's Tail*; and which is occasioned by pressure, by the point of a finger, on the Angle of the Eye. This phenomenon he has recorded; But, without having traced it to any result. And, indeed, the thing is no other than is known to every one; together with other such phenomena, arising from blows, and other causes. And here it appears to be a most wonderful omission, in the case of so vast a mind as that of Newton; and this, too, at a time when he was bent upon obtaining any light on the subject; that he never thought of trying TWO PRESSURES, SIMULTANEOUSLY, ONE *on EACH EYE*. HAD HE DONE so, *but in a single instance*; in that instant, One of the Grandest, and Most Important, of all the Arcana of Nature had been revealed to him, by its flashing on his Sight: And, he would have been delighted on finding the reality of that Visual Mechanism in the Head, whose existence he had always firmly believed in; and which, also, agrees in gross with the creed of all philosophers, both ancient and modern; the school of Reid alone except-

ed : But, which he had not succeeded in bringing to light ; although he practised many experiments with that view ; and, had actually *fried* the optic nerves, among other means for obtaining his purpose.

The Grand Visual Fact, which would thus have burst upon Newton's view, consists in a display of the truth that, upon pressing the Outer Angle of the *Right eye*, we behold a *Peacock's Feather* situated on the *Relative Left side* in the MIND, residing in its *Sensorium in the Brain* : While, a similar pressure upon the outer angle of the *Left eye* occasions our seeing another Peacock's Feather, situated on the *Relative Right side* in the Mind : BOTH the feathers being seen simultaneously, in the presence of each other.

Now, this most beautiful and astonishing exhibition ; and the tracing of its Rationale ; is that which has, by Sir David Brewster, been designated the "PHILOSOPHY OF FOOLS." And this designation he has, as he thinks, justified by his turning the FACT of *Two eyed Vision*, into a *supposed Case* of the Vision of a *single object*, viewed by a *single eye*.

The Example of the Recrossed Feathers, now afforded, however, may be considered as a FIRST FRUIT, or *leading crucial example*, of *Recross Cerebral Vision*.

But there is a consideration here, which we must not leave behind us ; and, which is that of an attempt on the part of Sir David Brewster to invalidate Recross Vision by means of introducing

an *Extraneous Phenomenon* into the example which I have just afforded.---Thus, he says, in speaking of my labor :—" If he had acted upon his eye-ball " with a greater pressure, an experiment not very " safe ; he would have found that the pressure was " propagated across the eye-ball, to the opposite " point of the retina ; and, that in consequence " of two opposite points of the retina being acted " upon simultaneously by pressure on one point, " two diametrically opposite luminous images are " produced."

Now, the occurrence, *sometimes*, of the *two* phenomena which he has thus described, is, indeed a fact. But the phenomenon which appears under the point of the pressing finger is *not a peacock's feather* ; but, on the contrary, is a *longish narrow stripe*, of a pale whitish brilliancy. But, what renders it strikingly an object foreign to the Problem of Recross Vision, is the fact that, *it sometimes* appears, and *sometimes not at all* : Whereas, the two peacock's feathers are *as constant attendants* upon the pressures, as a shadow is upon every thing on which the sun shines. My Rationale will show that this extraneous phenomenon had not escaped my notice.—And here, I *conjecture* that, it is occasioned by the *Bony Socket of the Eye* ; against which the Eye-ball must be pressed, at any time when the pressure is strong.—But, whatever may be the occasion of this *sometimes intruding* phenomenon ; If Sir David Brewster cannot deny, (and, most certainly, he cannot deny,) that the feather which is *seen on the Left side* in the Senso-

rium is occasioned by the *Pressure on the Right Eye* ; and, the feather seen on the RIGHT SIDE in the Sensorium is occasioned by the *Pressure on the Left Eye* ; then, it was unphilosophical in him to drag in a *foreign object*, to embarrass the problem. Accordingly, therefore, his attempt recoils upon his own judgment.

It may be worth explaining here, that, if my *conjecture*, in this matter, prove true ; then, the foreign phenomenon, which Sir David Brewster has called in for the purpose of nullifying Recross Vision, *is itself an example of Recross Vision*.—For, While a light or a moderate pressure, on the outer angle of the eye, occasions a feather *to appear immediately opposite to that pressure* ; a hard pressure, on the contrary, by pressing the eye-ball against the opposite Bony Socket, obliges the Socket to occasion the *Streak of Color, immediately under the point* of the pressing finger.

Here I am absolutely driven, in self-defence, to protest against the procedure of my Critic upon the Subject of my course of Pressures,—a subject which I have supposed I might consider as being almost exclusively my own province. Nor, is my personal feeling ; nor yet my pretensions to useful labor ; the principal consideration in this case : Because the thing, to be here protested against, operates with great detriment upon the Public Mind, in misleading it from the investigations upon which Recross Vision is asserted. In that part of his Critique, above quoted, Sir David Brewster breaks out into the following censure of

my Course of Pressures on the Eyes:—" Thus
" disappointed by the perusal of the first sections
" of Mr. Fearn's book ; we hoped to find some-
" thing deserving of praise in his fifth and last
" section, '*On Vision without External Objects*,'—
" a subject very little studied, and one in which it
" would be difficult to make numerous experi-
" ments without stumbling on some useful, or im-
" portant fact." Now, it is a little after this effu-
sion that he utters the taunt, manifestly implying
my being puerile in the subject, in my not having
urged the Pressures to a more effective degree.
And, he crowns the lesson, by the following asser-
tion :—" Hence, we explain all the phenomena
" which he has described ; and many more which
" have escaped his notice."

It is said that men bear insult less patiently, than
they do injury. And, I confess, I have suffered
more of chagrin from the operation, in my mind,
of the vamping taunt in question, than I have
done from reflecting on some of the blunders
which bear importantly upon my Views. Would
any one, who reads the flourish, at the expense of
my labors, and with the obvious design to write
me down as a novice in the matter, imagine that the
extent of my Course of Experiments, in the De-
partment of Pressures is, to the best of my belief;
and, from all that my Opponent has said of his
own experiments ; *at least more than FIFTY TIMES*
the extent of his experimental course in the
same department?—And, to render his weening
the more astonishing ; he has, in the same part of

his same Critique, accorded to me the following *acknowledgement of the fact*. Thus, he says,—
 “ The Optical readers of this Journal will recollect
 “ that we had occasion to discuss the analagous
 “ subject of the vision of impressions on the retina.
 “ These impressions, however, were made with
 “ strong light upon the retina ; whereas, Mr. Fearn
 “ has occupied himself principally with the lumin-
 “ ous circles produced by pressure on the eye-ball.”

Now herein is an express acknowledgment that, the *extent* of my Course of Pressures went the length of a “ PRINCIPALLY.” And here it is conclusively edifying to PIT, *against this recorded principally*, the extent of Sir David Brewster’s entry upon the same Department of Optics. His Critique on my Rationale, I have already said, extends to about *three whole pages* of his Journal.—And, besides this, he has read a Paper, of his own, *also of about three pages in extent*, before the British Association, on the Subject of Pressures : In the course of which last, he has described experiments leading to THREE RESULTS ; not one of them bearing, (even in his own estimation,) upon Recross Vision. If he has ever moved farther than this, in the Department of Pressures ; I am ignorant of the fact. But, I think it is undeniable that it was my Rationale, in the year 1831, that first set him, at all, upon a Course of Visual Pressures. And yet, such is the extent of labor, in this department, of the Optical Functionary who has *schooled me to this amount*, on the Induction of Pressures. — I may submit it to all honorable

minds, Whether this is not a mode of CRYING DOWN the labors of an Opponent, such as might be far more expected in the walks of lower avocations, than in the high paths of philosophy.

The real truth of the case is that, so far has Sir David Brewster been from *shewing me the way to perseverance* in this department, that I have here, in order to warn others who may be induced to take up such experiments, that, although, I think, a course of moderate pressures rather strengthens the eye; yet, I have more than once urged the pressures, both in *mode*, and in *degree*, so far as to bring on symptoms which gave me considerable disquietude for some time. And, I do not think that the *degree* of the pressure can safely be carried so far. Although, perhaps, the *manner may be* varied to some useful effect.

But, there is a far other matter here, than the weening boast described. For the truth is that *the very phraseology alone*, employed by Sir David Brewster, as already quoted, is a *critical test* of his utter darkness in Recross Vision,—a darkness which is most wonderful when he had that Department laid out before his eyes in the Rationale. Thus, when he talks of my being occupied principally *with circles produced by pressure on the eye-ball*;—he ought to have said, in the plural number, pressures on the TWO EYE BALLS IN CONCERT. And, although it is a most momentous Optical truth that, EACH EYE *has its OWN PROPER MECHANISM for producing* RECROSS VISION: (which recorded truth Sir David Brewster would have found, if he had but pressed upon EACH corner of a *Single Eye*;) Yet, he never men-

tions any such thing as two *simultaneous pressures*, either upon *one*, or upon *both* eyes.

The reality of Recross Vision is, I trust, now established upon the strongest ground of actual induction of phenomena, and of reasoning upon those phenomena. And thus, a NEW HALF, (as it may be called,) is added to the Science of Optics. A consequent demand for the employment of *New Names* is now requisite, in order to distinguish the two departments now in existence. And, accordingly, I have supposed it indicated to designate the *One* by the name of *Lucernal*; and the *Other* by that of *Cerebral Optics*.—I shall now advance, as speedily as circumstances will permit, to examine Sir David Brewster's supposed refutation of my views in the Department of *Lucernal Optics*: this being the department which he has chosen, EXCLUSIVELY, for his purpose. But, previously to this, I am under a necessity to entertain a very different consideration.

On the publication of my *Rationale*, in July 1830: and being, I confess, impressed with a confidence in the thing, quite equal to that which I could repose in any mathematical process: I sent a copy of the work to Sir David Brewster; whose position in the community, not only as an Optical Philosopher; but, also, as being the Actuary of a "Philosophical Journal;" rendered him peculiarly fit to take the matter into consideration. As such, I called upon him, *not indeed for his criticism*; but for his *recognition*, as he truly says.—Sir David Brewster was not slow to answer my call.—And,

in his "Journal" for *April* 1831, he has pronounced upon my Work; including, indeed, all my other labors, on every subject; such a scathing of contemptuous effusion, as has perhaps never been surpassed, if ever equalled, in the annals of philosophical hostility. And, such was the overwhelming advantage which he possessed, *in point of POSITION in the Scientific Community*, that the exterminating Sentence, which he thus pronounced, fell like the bolt of heaven upon the work. For, although, at first, it began to move, as such an unpopular subject might be expected to do; yet, from the appearance of the Critique in question, during now a lapse of Six Years, it has remained virtually as dead, as if it had never existed out of the brain of its author.

The Critique, which has wrought this virtual death upon my labor, is certainly of no ordinary composition. And, it deserves to be held up here, as a logical tissue of its own kind. In point of *extent*; it does not occupy more than *three whole pages* of the "JOURNAL." And, yet, it contains a denounced bane upon a variety of my labors: And, so chastises my moral want of decorum, in my imputed, but falsely imputed, attacking of my betters in philosophy; That, if I cannot find justice of my Country under this shower of odium; (enough, certainly, to scare all men from the hazard of holding literary communication with me;) I can have no wish to lengthen out a life reduced to this predicament.

What crowns the complexion of this Critique

is that, it is written, not in a morose or ascetic strain ; but, on the contrary, in a *bland and benevolent tenor* : the characteristic feature of which is a desire for my good ; and, for my amendment, in order to produce this good. And, in the climax of its philanthropy, it is most HIGHLY MONITORY ; and *full of regrets that he is under the necessity* to show that I am thus devoid of propriety, as well as of science. And here I trust that, his benevolent intentions ; (of which, it will be indispensable that I should afford a specimen farther on ;) will not be lost to the subject ; but will be duly appreciated, as an internal evidence of the SPIRIT in which the Critique was conducted ; more especially when it is to be taken into the account that the person, for whose amendment all this was intended, was an old man, who, in the course of nature, was past all improvement.

But, to come *now* to the GIST of my CASE :— AFTER SEVEN YEARS of my endurance of the pressure of Sir David Brewster's Critique ; during all which years an old man has been advancing nearer to his grave ; I now bring SUIT OF APPEAL to my Country, in the persons of her Optical Philosophers. And, remarkable it certainly is that, upon so long and slender a thread has depended the future existence of Cerebral Vision : for, if this thread had snapped, there appears little chance but it would have remained a dead letter under the condemnation of an approved optical functionary.

And here, I hope, I have evinced a sufficient

extent of endurance, especially when I urge that it has never been lightened by any sign of consideration on the part of its Author; although my published "*Letter*" to him, which forms a *Third Supplement to my Rationale*, has afforded to him an ample occasion to redeem the mistakes which have proved so effectively ruinous to my prospects.

THE DEVELOPMENT OF SIR DAVID BREWSTER'S
SCHEME OF VISION AND PNEUMATOLOGY IN THE
EYE; AS CONTRASTED WITH VISION IN THE MIND,
IN THE BRAIN.

We come, now, to consider the UNFOLDING of the Scheme of Pneumatology, projected by Sir David Brewster, as already announced in the Introductory Address.—In the course of bringing out this Scheme, in his "*NATURAL MAGIC*," he has expressed himself as follows;—"The affairs of life could
"not go on, if the memory were to intrude its
"bright representations of the past into the domes-
"tic scene; or scatter them over the landscape.
"The two opposite impressions could not co-exist.
"The same nervous fibres which are carrying from
"the brain, to the retina, the figures of memory,
"could not, in the same instant, be carrying back
"the impressions of external objects from the re-

“tina to the brain. But, so rapid is the exercise
“of mental power, &c. &c.”

Now, in the effusion just quoted, we have it manifestly asserted that, *Each of our Optic Trunks* is a thing precisely of the *Same Mechanism*, as that of our *Rail-roads*. And, accordingly, either of the Optic Trunks cannot convey *two contrary progressive Trains of Carriages at the same moment*: but, the IDEAS that are passing toward the brain must *wait their turn*; while the opposite coming trains of IDEAS are occupying the road!

PHILOSOPHERS OF BRITAIN!—before we proceed farther in this Scheme; I would ask:—Can it be the SAME GENIUS that has proposed this *Rail-road Pneumatology*, that has also stigmatised *Cerebral Vision* with the Epithet of the “PHILOSOPHY OF FOOLS?”

But, to proceed.—Sir David Brewster develops his Scheme as follows:—“In darkness and solitude, when external objects no longer interfere
“with the pictures of the mind.”—Here, then, we find an acknowledgement that, “*pictures*” of things are in the mind: Which, most certainly they are; being no other than our sensation of colors, variously arranged. And, yet, in the Scheme in question, they are asserted as travelling *out of the mind*; and this, in the same waggons, and on the same Railroads, which convey the retinal impressions. This enormous violation of the uncontradicted admission of Philosophers, that Sensation is an affection of a mind only, I shall have to notice fully in a future section on the dif-

ference between COLOR and LIGHT. But, at present, it is enough to call attention to the assertion in effect, *that the Thoughts of the Mind* are continually performing *alternate voyages*, from the mind to the retina; and back, from the retina to the mind. And, consequently, that the mind and the retina are, each of them, an Emporium or Store-House for the occasional deposit of our thoughts.

Again; he says:—"With persons of studious habits, the mental pictures are much more distinct, than in ordinary persons."—And he goes on, at some length, in the same strain.

Again:—He asserts as follows.—"If it be true, then, that the pictures of the mind, and spectral illusions, are equally impressions on the retina;" (PICTURES OF THE MIND IMPRESSIONS ON THE RETINA!!!) "the latter will differ in no respect from the former, but only in the degree of the vividness with which they are seen."

THIS, THEN, GENTLEMEN, is the newly proposed Scheme of Pneumatological Science; a proposal, not by an obscure or nameless pretender, who, if not accredited by titles of merit for actual attainments, one would confidently pronounce to be a charlatan in the subject: But, on the contrary, a British Functionary, of high and just reputation for services rendered in a certain department of Optics.

Now, As Sir David Brewster's *Natural Magic* was published in the year 1832; And, my *Rationale of Cerebral Vision* appeared in 1830; it becomes, as I have before said, a matter of vital

moment to my case that I should show, critically, what was the SPIRIT in which his Critique on the Rationale was conducted. And first,—It is manifest that, our respective Schemes of the Mind are, to the last degree, opposite and incompatible. If, therefore, his procedure with regard to me, or my views, has been unjust, or illiberal; I presume, there can be no doubt what has been the cause of his returning a profess and sincere compliment to his pretensions, by an exterminating condemnation of my labors.

And here, I have to adduce what I suppose will decisively shew whether he has not followed my transgression beyond his Critique, into his Natural Magic.

In speaking of *Impressions on the Retina*, in his Work in question; he breaks forth into the following very extraordinary, and equally uncalled for, effusion:—"Here we reach the gulph which human intelligence cannot pass. And if the presumptuous mind of man shall dare to extend its speculations farther, it will do so only to evince its own incapacity, and mortify its pride."

Now, unhappily for the philosophical tact of the Moraliser, who has thus expressed his indignation against intruders of this cast; it is to be observed that Sir Isaac Newton had so "DARED." But, to pass over this slip of his memory; it is here to be remarked that, Sir David Brewster's Natural Magic is written, not in a morose, or ascetic vein; but, on the contrary, generally speaking, in a facetious, or humorous style,

rather exciting the risibility of a reader. We are, therefore, here urged to ask: What could have STUNG Sir David Brewster into the more than stern denunciation which he has pronounced against the "DARING" of any one, who had pried into any secret of nature beyond what he himself had done?

Can it, then, be doubted Whether, or not, I am the intruding meddler at whom this denunciation is pointed? And, Can there be a moment's doubt, but it was the offence of my starting Cerebral Vision, in the face of Pneumatology in the Eye that roused up, in his Critique, the whole assault on my optical labors, and on my whole philosophical existence; and, that broke out again in his Natural Magic?

When Sir David Brewster deemed it decorous to put on the Moralists for my amendment; as, it will presently appear, he has done in the most intolerable extent; he would have done well to remember that he was inflicting this upon a far older man than himself; whose improvement, therefore, was utterly out of the question, and the inflicting of insult upon whom is the only discoverable motive. But, as to his warning me against the "DARING" of a prying into the Arcana of Nature; or, rather, his general denunciation against all such prying; Every one who possesses the least tincture of Philosophy must SMILE at the thing; as it must be self evident that, either the Great Architect of Nature approves of our attempts to solve the whole problem of Nature's ways; or, else, every such attempt, the first no less than the last, must be

impious.—I confess, therefore, that I am obliged to Sir David Brewster for the lesson.---It embodies a whole volume, in itself; which nobody can mistake.

It must be, for various reasons, my wish that I could, compatibly at all with my reputation, or very existence, either as a philosopher* or a man, permit the moral procedure of my Critic to close here, with what is already stated. But, it is certain that my annihilation, in both capacities, has been, during seven years, consummated, for the time, by a proceeding of Sir David Brewster in his Critique, which I must now place in the view of those whom it may concern. The matter, which thus urges for statement, is the fact that, after he had finished his Critique; wherein, he has stamped upon my labors the express character of "FOLLY : " And having, to my unutterable surprise, proclaimed me in the face of NEWTON; whose views it has been my solace to think I have realised: Each of these denunciations being, in itself, sufficient to warn off all men from my labors: He then pulls off the Critic's Gown; and, vesting himself with the Monitorial Cap of the Judge, who is about to exhort a culprit previously to passing sentence upon him; he pronounces, for my future benefit, the following advice.

" We regret very much that we are obliged to
" give so unfavourable an account of Mr. Fearn's
" optical labors. If he will only leave the fields
" of speculation; and, with some feelings of respect
" for the researches of his predecessors, will de-
" vote himself to the hard labor of experiment and

“observation; we have no doubt that he will do something which will gain him credit, and reputation.”

When men are surcharged with a purpose; their eagerness is apt to blind their circumspection. After Sir David Brewster had thus recommended, to a man whom he knew was old, a course of experiment, and observation; which advice implies the imputation that he never had experimented, or observed; What reason could this Monitor have for “NOT DOUBTING” that such a man “might do something to gain himself credit, and reputation.”—What reason could he have, for “*not doubting*” that a “*Philosopher of Folly*” might do something creditable?—The Gentlemen, to whom I make this Appeal, are not votaries of Fortune; but, are votaries of Knowledge. And if, in any station of life, the dignity of our nature ought to be uppermost in our esteem; it ought, surely, to be in the Philosopher. Either Sir David Brewster *believed* that I was the being whom he depicted in his moral advice; or, he did not. But, if he did believe it; then, Whence came his *confident* belief, his “*no doubt*” *belief*, that I could mend?—To the Gentlemen appealed to, I therefore here address this case; and ask: Is the complexion, of the monition in question, consistent with the dignity of their Order?

Here, at any rate, I have to represent that the individual, for whose amendment this advice was given, was at that time an old man, approaching to, and now arrived at, the unimprovable age of “*three-score and ten years.*” And, was one who

had done his work, to the amount of a Dozen Volumes on a variety of abstruse subjects ; and which are not without their witnesses,—a fact sufficiently known to my chastiser.

The mention of these labors I have been goaded into, in order to shew what has been the literary course of the man upon whom Sir David Brewster has deemed it both just, and decorous, to inflict measureless contumely. And now, Gentlemen, it is for you, and for all honorable minds, to ASSIGN THE AMOUNT OF PHILANTHROPIC SPIRIT, which could enable a man, dignified as my Critic is in the Philosophical Community, to inflict such a scathing upon the waning remains of former capabilities, in the person of one who could thus refer to his vouchers.

And, here, I ask:—Would this Critic have dealt out the same outrage of all feeling, to any Member Elect of the Scientific Community ?—And, if he would not ; then, What excuse can there be for treating any one, who had exhausted a life in the service of Science, as being out of the pale of required observances.

GENTLEMEN ! The statement, now given, has far other motives, and utility, than that of relating a personal wrong. As regards myself ; it, has, indeed, the cause of an individual for its object. But it bears upon Philosophy, in the case of Vision in the Brain, with vital moment ; inasmuch as it is the KEY,—*the only possible Key*,—which could enable you to unlock the reason of Sir David Brewster's hostility against the discoverer of Vision in the

Brain.—It is this key which alone, moreover, could possibly enable you to unlock some of the astonishing absurdities that, I think, will appear in the Critique which has been uttered upon my *Rationale* : And, if possible, the still more astonishing avoidance, first and last, of the *Fourth Mode or Half-field Vision*; except, only, in that instance in which he names it for the department in which he proposes to refute the whole of Cerebral Vision; and, then, *never adverts to it again*. This part of his proceeding, indeed, is so wonderful, that it is indispensable to state the fact here; especially, as it amounts to *no less than a formal recognition of Vision in the Brain* on the part of my Critic: Of which fact, I shall make due use, in its proper place.—The thing is expressed in the Critique, in the following terms:—

“As the views of our Author on these subjects, are all original, and stand in direct opposition to the opinions of the most distinguished philosopher, and metaphysicians; it would require a volume as long as his own to make our readers acquainted with them; and, another volume of equal length to examine them in detail.—Mr. Fearn will, therefore, we hope, be satisfied with an examination of his *Fourth Mode of Vision*; which he characterises ‘as a *clear field* of unoccupied ground, there not being the least evidence of its ever having been noticed, and far less discussed, in any extent Treatise on Optics that has fallen in my way.’”

Now, as the last words, in the passage just

given, are quoted from the Rationale:—And there is much more in the Rationale on the same topic, describing the non-recognition, by all Writers, of the fact of the Fourth Mode ; It is here most urgent to ask ; Whether it is not extraordinary that Sir David Brewster does *not make any question of the reality of the Fourth Mode* : but, on the contrary, *proposes to proceed upon my assertion of it* ? It is needless to remark that, he would not choose a Mode of Vision, for the purpose of trying upon it his test of Visible direction, *if he did not believe in the reality of the Mode which he so chose*. In a word ; I shall turn to this matter again, in the sequel : And, shall here only observe that, it forms a plenary virtual recognition of Vision in the Brain : Although, certainly, he did not so intend it.

If Sir David Brewster can make his own view of the subject good ; it is his affair to do so. But, I suppose it is impossible to deny that he has evinced a confusion in his conception of the subject, in thus confounding the Fourth Mode of Vision, with Another Mode differing infinitely from it in in effects, and consequences,—a mistake of such magnitude as ought to render him cautious how he deals, with unsparing severity, with any labors of others. His certain optical repute ought to be a guarantee for his *infallibility*. And, yet after seven years' deliberation, I would not withdraw any one position which he has condemned in my views of the subject. And, if this does not prove a very extraordinary BIAS in him ; it certainly establishes a rare amount of stupidity in me.

THE FACT, THAT Color and Light are Two Most Different and Heterogeneous Entities. ORIGIN OF THE LAWS OF PRIMARY VISION.

After explaining, as has been done in the foregoing Section, Sir David Brewster's project of Pneumatology in the Eye, is the proper place, in this Appeal, to entertain the fact that Light and Color are among the two most *Heterogeneous Entities* which the human mind can conceive !

The Agent we call LIGHT, as far as we yet understand its nature, belongs to the category of *Substance*; and, it appears to be some modification of External Body. At any rate, Light operates mechanically, by motion, and by what is called *contact or impulse*. The other Entity in question, namely, COLOR—is *not a Substance*; but, is a *Modification or State of a Mind*.

Fortunately, there is not a fact in philosophy concerning which there is a more universal consent, than that now under consideration: Because, Color, as an affection of a mind, is one of the Bases, or Fundamental Positions, upon which any true Physiology of the Mind can be built. The Thing, thus considered is, alike, the Starting Post in the Pneumatology of Locke and of Newton, in the old school; and of Reid, and of Stewart, in that which followed and was opposed to it. Nor is this unanimity at all affected by the *salvo* which the Instinctive Theory of Reid led him to set up, in his assertion that *Color is an external quality*, name-

ly, *a sort of skin attached to the outsides of bodies*, as the Vulgar take it to be: And, that we have in the mind a sensation, which Dr. Reid calls "*the Appearance of Color.*"

Criticism would be disgraced by any words employed with intent to render this *salvo* worthy of philosophical consideration. And, accordingly, in the writings of Professor Stewart, we have ample expressions to evince his dissatisfaction, and complete dissent, from this device of his Teacher. Nothing, indeed, can be more certain than the total SPLIT TO THE BOTTOM between the fundamental views of those two otherwise-united philosophers: Although, Professor Stewart appears to have made it a point of chivalry, to carry his Teacher upon his shoulders, through all the perils, and all the ultimate wreck, of the Instinctive Theory.

The controversy between Mr. Stewart and myself, regarding who was the original proposer of the fact of a *a Variety of Colors being necessary to our perception of Visible Outline*: He having, in his "DISSERTATION" prefixed to the Encyclopædia Britannica, in the year 1818, asserted that, "*he had differed from Dr. Reid more than forty years ago,*" on the subject: Whereas, I had published my "*Demonstration of the Laws of Primary Vision*" in the year 1814. And having, in his Dissertation, affirmed that *nothing can be more self-evident than that a variety of Colors is necessary to the act of perception in question*: Both these proceedings prove, inevitably, that *there was a SPLIT*; and, this split no higher up than *at the very foundation of*

their Theory. At the same time, it seems wonderful that we find not so much as a hint of this difference, in all the Five succeeding Editions of Mr. Stewart's Elements. And the matter comes out only in the "Dissertation," some years after I had started my Theory of Perception *by a discrimination between any Two contrasting Sensations of Colors*, as discerned by the Intellect. My having written to Mr. Stewart, asserting my claim to the Originality of the thing, has nothing to do with the present purpose: Although it has been accorded to me by a number of Periodical Writers; and, denied by not one. But, certainly, the whole matter sets the Instinctive Theory for ever at rest.

And here, the grinding evil of unexampled pressure urges me to appeal the following question, to all genuine minds: After Professor Stewart had suffered the schism in question, between himself and his Teacher, to remain buried from the public "more than forty years": Is there then any appearance that he would, after those forty years, have awakened the public attention to the matter, if he had not deemed himself obliged to do so by the forthcoming of my *Laws of Primary Vision*?—This question cannot, for a moment, admit of an answer in the affirmative. Mr. Stewart's *only mention at all*, of the very important fact, is dated about four years after the date of the *Laws of Vision*. And this bore upon my pretensions to their originality, so as to bring on my remonstrance to Mr. Stewart. There cannot, then, exist a doubt, but my humble labor roused Professor Stewart to

assert that he had been long in the possession of the *generic* fact; though, not in that of the ANALYSIS.

For my own part; I have not a doubt of Mr. Stewart's ingenuousness, in his claim to the generic fact.—But, his knowledge of it was such as was not available, or not availed of by him. And, now, I ask, Where has been the liberality, or the justice, of my Country; in that I have pined on, these twenty five years, since the Laws of Vision gave the Reideiam Theory to the winds?

Here it is to be duly understood, that Mr. Stewart, on my call upon him, did not arrogate to *himself* the originality of the generic fact of the Laws of Vision: But, only alleged that, he had met with the thing “*in several authors before he had ever heard of my name.*” One of these Writers he has quoted, as his authority,—namely—Lord Monboddo. And we must suppose that he had not a more effective authority to quote.—Now I have, in my *Prefix Letter* to Mr. Stewart in my “*First Lines of the Mind,*” stated the extent of Lord Monboddo's pretensions.—And, the *Monthly Review* for Feb. 1822 has afforded a most pointed and decisive commentary, on Mr. Stewart's appeal to Lord Monboddo.

But, three, or four, such effective appeals to the Country, as that in the *Monthly Review*, have availed nothing to the subject.

But, to resume the subject of the Misnomer, and Misconception, in question. There has obtained, among Optical Writers, a custom of employ-

ing the two Terms in question, namely—LIGHT and COLOR—as *synonymous* terms. And, along with this has been included an error in men's conception of the *two Notions* which those names signify.—Now the cause of the *misnomer* is perfectly obvious. And, when we are reasoning in the Science of *Lucernal Optics*, the misnomer is at once both convenient and harmless; especially convenient, because it saves much circumlocution, or verbiage, in a demonstration. But, when the misnomer is attempted to be introduced into the *Science of Mind*; the most disastrous results must necessarily follow. It is, indeed, unnecessary to enlarge upon a truth that must be manifest, on its mere proposal, to every person in the subject of Mind.

Accordingly, it fully appears that Sir Isaac Newton had a serious boding that some mischief would, at some time, arise from the perversion of the *two Names*, to signify *one same Nature*. And although, for the sake of its convenience in External Optics, he gave into the usual phraseology; he he has entered his protest against the usage, in order that it should never be carried into Pneumatology.

Under the name of a DEFINITION of Light, in his Optics, Newton says;—"The homogenial light
 "and rays which appear or rather make objects
 "appear so, I call rubrific or red making; and
 "those which make objects appear yellow, green,
 "&c. I call yellow-making, green-making; and so
 "on of the rest.—And, if at times I speak of light

“or rays as coloured, or endowed with colour,
 “I would be understood to speak not philosophi-
 “cally and properly, but grossly, and according
 “to the conceptions of vulgar people. For in them
 “is nothing more than a certain power, and
 “disposition, to stir up a sensation of this, or that,
 “Colour.” — One would think it would
 be impossible to hang out a more signal banner, in
 order to warn off all men from breaking down the
 partition between Color and Light.

In the face of this warning, however, we find
 Sir David Brewster trampling upon the distinc-
 tion between Light and Color : And viewing the
 two most Heterogeneous Entities of human concep-
 tion AS ONE ENTITY!—Thus, he not only makes
 the *Retinal Impressions* travel, like Railroad Wag-
 gons, up and down the Optic trunks : Which,
 indeed, I affirm they actually do *backwards* : (And,
 as *Automatic Reactions*, they may travel forwards
 from the Mind to the Eye in the case of the mind’s
 suffering either Memory, or Imagination, or
 Reverie ;) But, besides this, he makes our
Sensations of Colors travel, along with the
 retinal impressions. And, in this, he pro-
 ceeds as the merest novice in the Philosophy of the
 Mind would not follow him.

As for the nature of the retinal impressions ; I
 do not see that we can refuse the opinion of Sir
 Isaac Newton, that the Rays of Light *prick the*
retina with their points. And, the different rays
 being of different densities, occasion deeper, or

lighter impulses on the retina ; and these different degrees of impulse occasion correspondent sensations of color. Now, if this be entertained ; I will propose an analogy of the subject.—The pricked Retinal Impressions are analogies to *window frames*. And these window frames travel *empty* up the Optic Trunk, until they reach the Percipient Mind. In this case, the Mind *supplies Pictures in Colors*, which exactly fit the frames. But, the frames remain on the outside of the mind ; while, the *pictures preserve their distinctive features or demarcations*, and thus form a whole landscape, or a resemblance of any external object that occasions the vision in question.

This analogy is no other, in kind, than Mr. Locke's Pictures in a dark room. The only thing in which he was defective, in this case, is that he *did not reduce* his Scheme to any analytical demonstration, as he certainly did not know the fact that visible lines are the Interlimitations of our Sensation of Colors.—If either he, or Bishop Berkeley, had known this ; he must have known that *Visible Lines are breadthless*,—a fact which neither of these, nor any other writer, ever so much as suspected. But Locke was right in gross : although, not analytically definitive. And, in fact, all Philosophers, both Ancient and Modern, have thought like him ; with more, or less, of indistinctness in their conceptions of the Figured Objects which Sight reveals to us.

SIR DAVID BREWSTER'S PRETENDED REFUTATION OF
 RECROSS CEREBRAL VISION by the Alleged
 Principle of the Visible External Direction of
 Objects from the Eye.

In entering upon the discussion of the present head, I have in the outset to observe that the Subject itself is in the highest degree important in its bearing upon Mental Philosophy ; and, especially, upon the Problem of the Physical Intercourse which is carried on between the Percipient Mind and the External Cause of its Sensations, which is no other than the Various Modifications of the Agent which we call Body :—a Subject which, if it has been substantiated up to the point of a sufficient recognition ought, certainly, to effect a resuscitation of the worse than sleeping interest of our Countrymen, by rousing their attention to a New Epoch in the Science of Pneumatology ; and, to the opening of new prospects, and hopes, of the Destiny of our Species, in an indication of future states of existence, and of mental development.

With a view, then, to the description of the subject now contemplated, I observe in the outset that I shall, for the moment, lay aside every consideration of the *inconsistency* of Sir David Brewster's attempting to refute Cerebral Vision by the Principle of Visible Direction, when he himself had exploded that Principle by the proposal of Pneumatology in the Eye. The incompatibility of the two doc-

trines in question is so striking that, one is totally at a loss to conjecture how it would have escaped the notice of my Critic. But, the business of Philosophy, here, is with the FACT of the case ; and, is not so immediately with the consistency of those who attempt to treat the fact.

To commence, then, with the statement of Sir David Brewster, in this case :— He has selected my “ *Fourteenth Proposition* ” for the subject of refutation. And, to this choice I offer no objection : although, it presents a case of vision from an external object ; whereas, any such case is much less safe from the chances of mistakes, than a case in which no external object is the occasioning cause.

Next : I have to accord to my Critic, that he has quoted the long title of my Fourteenth Proposition, including all its variety of *italics*, and SMALL CAPITALS, with great precision. But, it is to be observed that, at the time he was writing the Critique, he had not yet broke out into rebellion against the Principle of Visible Direction ; because it appears, *from dates*, that it was about a year after his writing the Critique, that he published his Pneumatology in the Eye, in his Natural Magic.— Judging from the *general tone* of his strictures, therefore, we may conjecture that his punctilious exactness, with regard to my verbiage in the title, arose from his being *elated* with the thought of annihilating the whole of Cerebral Vision at a single blow. And, indeed, he expressly boasts of having indulged my letter-press : And thus evinces

a triumphant feeling, in the thought of vanquishing an opponent.

And here a consideration occurs, which at least claims to be mentioned.—I might naturally have been led to think that, no cause could give rise to the amount of exterminating censure which has been heaped upon me as author of the *Rationale*, except such an event as my bringing forth that Treatise in the face of Sir David Brewster's *Pneumatology in the Eye*. But there is certainly another imaginable cause, which might produce a very considerable degree of hostility. And this must here be taken into the calculation. It is manifest that Sir David Brewster's desire of Optical Fame is immeasurable,—a laudable desire if maintained within the limits of justice to others ;—but which, otherwise, may produce a great amount of mischief both to individual right, and to science. Now, the question here is, Whether philosophical jealousy, by itself alone, has brought upon my labor and myself, all the scathing which both have undergone at the hands of my Critic? If this be supposed ; it will follow that Sir David Brewster had not broke out into revolt against the Principle of Visible Direction when he attempted by its efficacy to overthrow Cerebral Vision.

It is obvious that, in the case of any one possessing an inordinate ambition to engross the whole Science of Optics ; it must be a strong pull against that ambition to have the Science of Cerebral Vision snatched for ever, from his grasp. Whether, or not, this has been the cause of Sir David Brew-

ster's unqualified hostility to me, I leave it to others to judge. But, at any rate, the TENOR OF HIS CRITIQUE stands a monument of his feeling: Which feeling can admit of no palliation from any intended act of mine.

But, to resume now the statement of Sir David Brewster. He has quoted my Fourteenth Proposition as follows :

“ *When we see an external object, One Half of*
 “ *it with One Eye, and the Other Half with the*
 “ *Other: it is certain from the laws of dioptris that*
 “ *an impression from ONLY ONE HALF of the object*
 “ *is inverted in ONE eye; and an impression from the*
 “ *OTHER HALF of it is inverted in the OTHER; and*
 “ *the consequence of this is that, we ought to see, NOT*
 “ *THE WHOLE OBJECT, IN THE NATURAL ARRANGE-*
 “ *MENT OF ITS FEATURES, but this object IN TWO*
 “ *UNNATURAL HALVES, TURNED PREPOSTEROUSLY*
 “ *BACK TO BACK. But, any such preposterous phe-*
 “ *nomen, as this, we NEVER WITNESS: and, there-*
 “ *fore, WE DO NOT SEE IMMEDIATELY FROM THE*
 “ *INVERTED IMPRESSIONS IN THE EYES: but these*
 “ *are REFORMED AND RECTIFIED, TO A NATURAL*
 “ *ARRANGEMENT, BY SOME CEREBRAL MECHANISM*
 “ *WITHIN THE CRANIUM.*”

This being the statement correctly given, by Sir David Brewster, of my Fourteenth Proposition; the following is his exposition of it: which he prefaces thus:—“ We shall now proceed to show
 “ *how the two unnatural halves are made to form a*
 “ *natural arrangement, without recourse to any such*
 “ *mechanism.*

“ It is a law of vision deduced from observation, and universally and demonstrably true, that
 “ when a ray of light, issuing from an external
 “ object, falls upon the retina; the point of the
 “ object, from which the ray issues, is seen in the
 “ direction of a line drawn perpendicular to the
 “ retina, from the point at which the ray falls upon
 “ it.—Now, if from every point of every letter in
 “ the inverted words— $\sigma\epsilon\sigma\iota\omicron\text{H}\rho\epsilon\omicron\sigma\text{O}$,—as delineated
 “ ed on the retina, we draw lines perpendicular to
 “ the retina till they meet the paper before the eye,
 “ to which its two axes are directed, their terminations
 “ will actually depict the words—COACH
 “ HORSES.—Hence it follows that the preposterous
 “ position of the inverted images is absolutely necessary
 “ to their being reformed in virtue of the
 “ law of vision already mentioned.”

Now, if the exposition, just quoted, were not offered as a grave matter of science; and this by a Functionary bearing a string of titles in recognition of his pretensions; one could never believe that Optical Science could be reduced to such a pass, in this Country. For, *First*, we have my *conditioned seeing of the word COACH in ONE EYE*, and the *word HORSES in the OTHER; changed*, into a seeing BOTH the words—COACH HORSES—in ONE SINGLE eye. And, *Secondly*, The Given Problem being thus *struck out*; and an utterly foreign Problem *foisted in*; we then have the legerdmain of the Law of *Visible Direction* played off upon this case of ONE EYED VISION. AND *here the proposed and pretended solution ENDS!!!* Upon this

exhibition, one is tempted to ask—Can this, in reality, be an Optical Exposition printed and published by a Functionary whose Optical Views, if they happen to be absurd, must deeply affect the Philosophical Character of the Country in which they make a figure?

The *wording* of this exposition, moreover, exhibits the most deplorable darkness in the *Department of Two-eyed or Half-field Vision*: in which, this Functionary flounders almost beyond all belief. Thus, he says—"as delineated in the retina, " we draw lines perpendicular to the retina, until " they meet the paper before the eye, to which its " two axes are directed." Now, previously to this effusion, Sir David had changed the Problem, from one of *Two-eyed Vision*, into a Problem of *One-eyed Vision*. And What, then, had he *afterwards to do with* "TWO AXES," which, he now asserts, are directed toward the paper? He, several times in this place, mentions the "*eye*," and the "*retina*," in the singular number; as was properly consistent with his views. But, the moment he talks of the "TWO AXES," as being employed, in any way, in this his *Single Eyed Vision*; he betrays a confusion of ideas, which puts him altogether out of the subject. Nothing, certainly, could palliate such ignorance, on a Subject on which he so arrogantly pretended to dictate, but great modesty, and candor of spirit, far removed from a desire to lacerate the feelings of others.

Here it is proper to advert to the fact that, *EACH EYE possesses its own exclusive System of Nervous*

Mechanism for recrossing its retinal impressions.—In the Rationale, I have, by a course of experiments, shown this, at large, namely, that the Perceptive Mind, in its SEEING PLACE *in the Sensorium*, (which last it occupies and fills,) is divided into *Two Half Vision Regions*; each belonging to the Impressions from One of the Cranial Eyes: which fact is a most notable, and adorable, evidence of the Goodness, as well as of the Power, and the Wisdom, of the Great Architect of our Frame. And this grand fact, of the Division of the Visual Systems of the *Two Several Eyes* into *Two Distinct and Separate Temples for our Visual Worship*, was before Sir David Brewster's eyes, a large feature in the Rationale. And yet, *as if it had been from some horror at the thought of this Department*, he never once in any way alludes to the Mode of *Two-eyed or Half-field Vision*, (that is to say the *Fourth Mode*,) except, in that extraordinary slip, in which he proposes to try my Fourteenth Proposition by the authority of this very same *Fourth Mode*.

Having now shown up *only some* of the absurdities which abound in the pretended refutation of my Fourteenth Proposition; I deem it of moment, in passing on to others, to treat of these last under a *Distinct Head*, especially that one which is here immediately to follow: to which, therefore, I now invite particular attention. In quitting the present head, therefore, I shall only notice a certain *fact of Recross Vision with a Single Eye*, which has not been understood by Optical Philosophers; although

the Visual Phenomenon itself, from which I draw the conclusion of Recross Vision, has been a Subject of notice, and of examination, by several Writers!" The thing in question is this:—It is known that, if we make *two pin holes*, very near together, in a card; and look through the holes with one eye; we shall thus *divide the Pupil of the eye into two Pupils*; and the consequence of this will be that, we shall *see a single pin's head double*.—This fact is well known. But the *cause or manner of the doubling* has never been at all suspected.—The real fact is, that it is a *Case of Recross Vision*: which, I have explained in the Rationale. Now, this case proves that, *even the most minute feature*, of every object seen with a Single Eye, is RE-CROSSED, in the course of its travel backwards from that eye, by a Nervous Mechanism that is the exclusive property of that one eye.—AND YET, Sir David Brewster saw all this, described in the Rationale. AND YET, he could not bring his mind so much as once to allude to any Mechanism for the recrossing of impressions!—Indeed, the variety, and extent, of the Subjects which he saw in the Rationale, could never, in the least, be supposed from what he has observed, or alleged, in his Critique. Let Optical Philosophers judge the reason why.

Of the OPTICAL CONSEQUENCES of the LATERAL DISTANCE between the TWO CRANIAL EYES, in the Case of Half-field Vision :—And, of the demonstrated Impossibility that the Alleged Principle of Visible Direction, even if were a true or real principle, could account for, or in any way apply to, Any Case of Half-field Vision, that is to say Vision in the Fourth Mode.

As we have seen that, Sir David Brewster has turned his back upon all thought of Half-field Vision ; it is here to be understood that, in treating of the Fourth Mode, at the present moment, I do so only, or principally, with a view to *its own nature*.

In the *First* place, therefore, I have to call the reader's attention to the fact that, the *Greatest Principle, or Means, by which Recross Vision is effected, is the LATERAL DISTANCE between the Two Cranial Eyes*. And, of course, this fact, of the Lateral Distance in question, is of the very first moment in the Solution of the Problem of the Fourth Mode ; Although Sir David Brewster has never, for a moment, *waked up* to the discernment of a principle that is all in all, in the process of Half-field Vision.

Secondly, It requires to be described that, in the case of different Individuals, the Lateral Distance

between the two eyes varies considerably : This distance being, in some, *about one inch and a half* from the CENTRE of one eye, to that of the other : While, in other persons, the distance may be *two, or two and a half inches*. The different optical consequences of this difference in persons, in producing natural vision in some, and preposterous vision in others, by occasioning either a meeting, or an over-passing, or over-lapping, of the occasioned Color Images in the mind, when the retinal impressions are discharged upon the Percipient, is very great. And it forms a grand feature in the subject ; to which Sir David Brewster requires to be introduced, as presenting to his weening a doom which he will learn to appreciate ; but which, indeed, I can have no doubt, he has already wakened to a due sense of. In the case of Vision with a *Single Eye*, this mighty fact of *Lateral Distance remains out of Sight*. And it is not until he comes to deal with Half-field Vision, that the believer in *Visible Direction* sees his refutation yawning upon him, in the gulph between the Two Eyes ; which his device cannot enable him to pass.

From what has been described, it may be readily understood that the *various modifications* of lateral distance, and of other circumstances, by which Color Images are occasioned in the Mind, must be very great. Thus, if, instead of our having an impression in the *centre* of each eye ; either *both*, or *only one*, of the impressions were upon *either side of the centre* ; in this case we should have a correspondent

varying of the *place of the occasioned Color Images* in the mind. And the whole of this *CONCERT of results* affords the most perfect *rational certainty of the General Fact of Cerebral Vision*. And, after once contemplating the Scientific Essence, and Beautiful Symmetry, of this same Visual Mechanism; Can we turn, and contemplate the application of the Principle of *Visible Direction*, played off on a Case of Vision with a *single eye*, without being deeply impressed with a conviction that it is a pitiable *LEGERDEMAIN*, unworthy of a Great Nation profound in the Philosophy of Vision?

But, for the present purpose, it will be expedient to go into one, or two, leading examples exhibiting the principal modifications of the subject. And, as being the most important, or available Case, I will here consider the case of *Single Vision with both Eyes*. The rationale of this case has long been known and settled. It consists in the hypothesis (for all optical laws are only hypotheses proved by reasoning) that the two similar impressions in the cranial eyes are transmitted back, and fall co-incidentally on the Sensorial Tablet in the Mind. It was this reasoning, of course, that led Sir Isaac Newton, and his Associates, to their attempts to trace the fact. And, they could have no other ground for their confident belief that Vision is performed in the Brain.

But, in the face of this reasoning, Let us now attend to the Optical Creed of the present day.—In a *Treatise on Optics* given in the “*Library of Useful Knowledge*,”—a Work published under

the auspices of Lord Brougham ; and, in which, of course, the *orthodox* creed of the subject is embodied ; we have the following exposition of the subject.—“ The subject of Single Vision with Two
“ Eyes has occasioned much needless discussion ; as
“ it is the necessary consequence of the law of visible
“ direction. Because the lines of visible direction
“ from similar points of one image, meet the lines
“ of direction from similar points of the other
“ image, each pair of similar points must be seen
“ as one point ; and the aperture seen by one eye
“ will exactly correspond with the aperture seen
“ by the other eye.”

Such, and no less, than the supposed exposition now quoted, is the EXTENT to which the pretended Principle of Visible Direction has been carried by our best Optical Authorities. And, let us now comment upon its reasoning. First here, then, it is plain that, the supposed Principle of Visible Direction gives to the *two eyes, when acting at one same time, NOT ONE, BUT TWO different, and laterally distant objects*, that is to say the two similar objects which are *an inch and a half apart* in the two eyes, and which cannot be brought less distant by the supposition of Visible Direction.—And here, the legerdemain, which would impose upon some persons in the case of Vision with ONE EYE, proclaims its own trickery the moment we attempt to employ it in a vision with TWO EYES. In short, it would be a waste of words, to dwell upon the gross fallacy of the attempt to solve the problem now in question by the fiction of Visible Direction.

Turn we now, therefore, to the solution of this problem by the assumption of a travelling backward of the two similar Retinal Impressions, until they *meet*; and *not only meet*, BUT CO-INCIDE in one same COLOR IMAGE in the THIRD OR CEREBRAL EYE in the *Sensorium*; or, rather, in the MIND, *which fills the Sensorium*. In this case, every desired condition of the Subject is fulfilled. And, besides this, as we certainly know that the *Size*, and *Structure*, and *Direction*, of the *Two Optic Trunks*; and of all the connected parts in the Brain; are *strikingly adapted* to that end which agrees with the conclusion deduced from reasoning on the case:—Nothing can be more satisfactory, than the deduction of Cerebral Vision from the fact of Single Vision with both Eyes.

It is the doctrine of Sir Isaac Newton, never controverted, that the *variety in our sensations of colors* is occasioned by *different degrees of density in the rays of light* which *strike with their points* on the retina. Now it is plain that, according to this doctrine, VISION is *only a fine Species of TOUCH*. If, therefore, we prick with a fine needle on our body; we cannot in the least tell *what is the direction* of this needle; because, our Touch is not assailed by the *length* of the needle; but, *only by its POINT*. If we thrust the needle into the flesh; that might afford us some idea that the pointed instrument has *length also*. But, nobody will pretend that, the inconceivably fine points of the rays of light can, by their impulse, *afford to the TOUCH OF THE EYE any perception of the LENGTH*

of the rays; or, that they have *any length at all*.—It is most certain, therefore, that the eye can take no cognizance of any object, except only the object that *impresses it*: And this object is a FINE TACT, analogous to that of a *pin's point*, though immeasurably finer. And, it would be quite as philosophical to assert that, the *tact of a sword's point* will inform a man that the *sword is long*; as to assert that a *ray of light will inform the eye that a ray of light is long*. And, since the eye cannot detect that a ray of light is *long*; it is self-evident, it cannot detect that it *has direction at all*; far less *what is its direction*.

If I remember right; it is to Dr. Porterfield, and partly to Dr. Reed, in their discussions on the subject, that we owe the *Origin* of the supposed Principle of Visible Direction: because, it only came after the Scheme of Bishop Berkeley, which makes the Mind refer its sensations of Sight to sensations of Touch; compared with which, the Scheme of Visible Direction has, certainly, some aspect of verisimilitude when only superficially looked at. But, certain it is, from his views of the subject, that Newton would have scouted the supposition of Visible Direction. And, certainly, he was as well acquainted with the External fact of the Direction of the Rays of Light, as any one since his time. And, no man could be fitter to discover a Principle of Visible Direction, than he was.

Beyond all doubt, the Scheme of Visible Direction is the Device of a Pigmy Age in Optical Science, brought into play by a desire of eclat to its

leading advocates; who have been more given to follow, than to discover. And its temporary reception forms a *HIATUS*, in Optical Philosophy, between the Discoveries and Doctrines of that Great Man who *made Light and Optics his own* and filled Europe with the scientific glory of Britain, and the present dark epoch.

The fate of Optical Philosophy, since the discoveries of Newton, calls for the remark that, there is an immeasurable distance between a *Philosophical Operative or Journey-man*, and a *PHILOSOPHER*.—A man of very ordinary capacity, if he take a cast toward Optics; or to almost any other department of Mechanical Science, may, by plodding industry, make considerable progress in his department; and, entitle himself to a fair portion of respect. But Who, that has any competency on the subject, would compare the *Calibre* of such a man with that of *NEWTON*?—Better might an Operative Bricklayer, or Mason, take up the Province of the Architect; and thus essay the task of Genius. *THE GENIUS OF NEWTON was an INDEX OF CREATION*. But the intellect of a mere Scientific Operative is *no index of any thing beyond his handy-craft*.

In the contrast which I have now drawn, it is not my wish to disguise that I apply one side of it to my would-be exterminating Castigator. I take Sir David Brewster, *on trust*, for a meritorious Philosophical Operative. And I rate his *Calibre* no higher. It needs not, in proof of this, to name his *Pneumatology in the Eye*. Because, his astonishing oversights, (to

call them by no other name,) in his attack on Vision in the Head, will for ever afford an exact measure of his *Philosophical Calibre*. He has pitted himself and me together, on the Arena of Optics. But, however arrogant it may sound; I will not own that I think I am duly so pitted [the moment the Science of Optics merges into the Science of Mind. And, as for the Science of Optics; I am now in the Judgment of the World; and, I trust, under the protection of the Optical Philosophers of Britain; who, now, cannot see me wronged, without making themselves intentional parties to that wrong.

SIR DAVID BREWSTER'S RECOGNITION *of the* MODE *of* HALF-FIELD VISION, or the Fourth Mode: Which involves his Recognition of Vision in the Brain.

The recognition, by Sir David Brewster, of the Fourth Mode of Vision, is a fact of such importance when we consider his optical pretensions, and his acknowledged eminence in the Scientific Community; that the holding up of this event cannot fail to bear very momentously upon the advance of Cerebral Vision. And I, therefore, entertain it accordingly, in addition to my mention of it in a former part of this Appeal.

In the place referred to, Sir David Brewster

expresses himself as follows:—" Mr. Fearn, will
 " therefore, we hope, be satisfied with an exami-
 " nation of his '*Fourth Mode of Vision*,' which he
 " characterises as *a clear field of unoccupied*
 " *ground!*"

Now, with regard to the phraseology of this passage; I must first object that it is ambiguously expressed, insomuch as might lead to a complete misunderstanding of what was meant. The truth is; it was not meant, as it expresses, to examine the *Fourth Mode*: because, that would have been to examine whether that Mode exists, and in what data or elements it consists. But the intention of my Critic was *only to examine a certain Case of Vision* by that Mode. As for the *Mode Itself*: he *expressly accepted of it, without a demur*. And it was upon the assumption of the validity of the Mode, that he proposed to explode Cerebral Vision by *applying to it* his Principle of Visible Direction. But, to return to the subject:—After my stating, concerning the Fourth Mode, the amount of what Sir David Brewster has quoted in his Critique; I went on, in the same place in my Rationale, in the following terms:---" On the con-
 " trary, the total oversight of this Mode; or,
 " rather, the avowed denial of it in the case of
 " Human Vision, is plainly implied, in a variety
 " of ways, in the extant treatises on the sub-
 " ject. With regard to the reality of this Mode,
 " I do not entertain the smallest probability of an
 " objection, when it comes to be fully described."

Such as I have now quoted were the confident

terms in which I acknowledged, against my own prospects, and at my single hazard, my being alone on the ground of the Fourth Mode: And, *under this acknowledgement we find Sir David Brewster volunteered, of his own free choice, his determination to examine my Fourteenth Proposition* by the test of this Fourth Mode. Now, when we consider the exterminating scathing he has bestowed upon *every other* feature of the Rationale; Is it not wonderful that my Critic did not attack this Fourth Mode? He had Newton, and all former Optical Writers, in his favor. And, *What then could have prevented* his attacking this Mode? But, instead of any such procedure, we have another wonder in his embracing this Fourth Mode. The fact would seem to be that, when he read the thing in the Rationale; he would naturally try the case by placing his hand, as a *Visual Sceptum*, edgewise upon his Nose. And, in that instant, the Fourth Mode would flash upon his sight; insomuch that, not even the authority of Newton could stand a moment in the way of his conviction.

That Sir David Brewster, after thus giving his assent to the mode in question, did, by a turn which could only be equalled by a feat of Legerdemain, whisk round and turn his back upon the Fourth Mode; and, did proceed to employ the legerdemain of Visible Direction upon the words "COACH HORSES," conditioned by him to be BOTH SEEN WITH ONE SINGLE EYE; instead of his proceeding in the Fourth Mode, as he had proposed, which Mode demands A SEEING of the word COACH with

ONE EYE, and a seeing of the word HORSES with the OTHER; this marvellous inconsistency is for himself to explain. But, it is not to be denied that he expressly accepted the Fourth Mode. And it cannot for a moment be pretended that he would propose to afford an exposition of an Optical Problem, by trying it on an Optical Principle which he did not believe to be true. That, when he did thus adopt the Fourth Mode, something at the moment blinded him to the consequences which it involves, there can be no doubt. But, his momentary adoption of it carries all the importance which I desire to attach to it.

The application, then, which I make of the thing, is to hold it up to Optical Philosophers; in order that it may operate on the judgment of some of them at least.—In the case of any new Views in Science, which contradict former prejudices; and, especially, when these views have high authorities against them; and these, upon various grounds, or assumptions; it will require some special encouragement to induce any one to be the FIRST *to speak out* on the matter. Now, therefore, when we consider Sir David Brewster, as an Optical Functionary of high repute; it cannot fail to carry great weight in the Optical Community that HE HAS spoken out; and thus led the way to a general recognition of Vision in the Brain, in which none can fear to follow him.

Here, by the way, I seize upon this place to explain that, the adoption, by Sir David Brewster, of the *two words*, "COACH HORSES," was to serve as a

SUBSTITUTE for an example which I have proposed in another proposition in the Rationale : In which, I conditioned to have a black-ink COACH depicted for one eye, and a pair of HORSES for the other. Now, I might criticise this substitute ; because it will be found that, in the case of the two words, they stand *so near to each other* that their two images in the mind will *fall one upon the other*, and so form *one confused object*. But, supposing this to be *another* of the mistakes in question ; I hardly deem it worth notice. Indeed, the blunders in question are so numerous, that some of them escape being specified in any one place. Thus, I have already pointed out my Critic's employing the word "*axes*," in the plural number ; when, at the same time he is solving the problem in question, with a *single eye*. And, in an earlier part of his Critique, he expresses himself thus : "Now, since an inverted picture of the COACH, and also of the HORSES, is formed in EACH Eye." Here, then, is another gross instance of *floundering in a mistake* ; because, it is a virtual death to my proposition, to place BOTH the words in ONE eye. The confusion here is the more inveterate, and wonderful, since my Critic has directed us, with all gravity, as follows :—"Let us then place the edge of a sheet of paper between H and H, the opposite edge touching the Nose, so that when we close the *right eye* we shall see only the COACH ; and when we close the *left eye*, we shall see only the HORSES."—Here, therefore, we have a virtual recognition of the Fourth Mode, as I have asserted. And yet, all

this parade is only given by him as preparatory to *solving the problem by, or with, ONE SINGLE eye* :

If the letter-press of my Critic did not speak for itself ; it would be impossible to afford credit to to the existence of the complicated mass of blunders, which form the context of the pretended refutation of Recross Vision.

DESCRIPTION OF CRUCIAL EXPERIMENTS IN THE MODE OF HALF-FIELD OR TWO-EYED VISION : which demonstrate that the Retinal Impressions travel backward, in their respective Optic Trunks ; and are re-crossed somewhere before they are discharged upon the Percipient Mind ; when they are instantly followed by Color Images.

In the last Section it was shewn, in the shape of strict mathematical demonstration, that the Hypothesis (for we are to remember that *all optical laws are only Hypotheses* of facts not seen, but presenting a strict agreement with rationated consequences ;)—The Hypothesis, I say, of a TRAVELING BACKWARD of the *Retinal Impressions*, made by Light reflected from External Objects : And, that other Hypothesis—namely,—of their RE-CROSSING SOMEWHERE *as they travel* : These two Hypotheses, together with their Proofs, fulfil the whole demand of our reason ; and leave nothing farther to be desired in evidence of a fact which, in its own na-

ture, is not actually either perceived, or at all perceptible.—And, now therefore, I proceed to describe some of the leading crucial examples of the subject; differing from each other in their special conditions, and in their correspondent results.

We have seen that the most important *lateral digression* of the Two Eyes, from the *posture of their similar direction*; (which last produces Two-eyed Vision of one same Object;) is that other modification of the lateral direction of the two eyes which occasions Half-field Vision.—I have called this the “*most important*” digression; because, it is this mode of direction of the two Eyes that occasions that daily and most universal act of Vision which takes place during our whole lives. Nor is this fact at all the less certain, although it has been overlooked by no less a genius than that of Sir Isaac Newton, as well as by his Associates, and by all following Writers.

And here, I deem it of consequence to suggest that, I do not think Newton would have held the same opinion, which he had done of the fact, if it had been proposed to him that any evil consequence could follow to the Science of Optics. Neither himself, nor his Associates, have denied Half-field Vision *as if it had been a thing proposed* by any one. On the contrary, they appear to have only fallen into their view of the subject inadvertently, and not anticipating any dissent, or prejudicial result. That the Human Species *does occasionally* employ both eyes as one same eye; is a fact beyond dispute. And this fact, as it could

not fail to strike, and impress, the earlier Opticians, must have tended strongly to induce a general belief that the *use, or final cause*, of our having two eyes, was to admit of the Mode of *Two-eyed Vision of* EVERY object, of every kind. But, the certain fact that, not one person in very many does ever see any object with *both* eyes : And the well known fact that some persons, who have been blind of one eye during many years, have never discovered their defect, until some rare occurrence has revealed it to them : Both these general facts have made it certain, beyond contradiction, that *it is not two-eyed vision* of a SINGLE OBJECT ; but, on the contrary, *it is Half-field Vision* of things in general ; that we habitually employ in surveying the great Scene of the Universe — namely — The country, and the town ;—The theatre, and the full assembly ;—And, even, the apartment in which we study, or sit. It is for this grand sphere of utility that the Great Architect of the eye bestowed upon Man the bountiful gift of Two eyes,—as their PRIMARY *final cause* : Although, doubtless, it is a *Secondary final cause* that one of the eyes should serve the purpose, in case the other were destroyed, or hurt.

By the way, I may here mention that my attention has been drawn to the *position, and use, of the eyes of certain species of animals* ; and, especially, those of Fish, whose eyes stand *upon opposite sides* of their head. But, as the dwelling on this structure would draw me into some consideration of Final Causes ; I shall not introduce the matter in

this place; but, shall consign it to an *Appendix*, if I am enabled to afford it, at all, in this publication: to which, however, it is certainly relevant.

Here, then, as being introductory to the consideration of the Following Crucial Examples of Recross Vision; I have to state, FIRST, that the WHOLE PROVINCE of Vision in the Brain divides itself, naturally, into THREE SEVERAL DEPARTMENTS: Each of whose Boundaries is wholly distinct from the others; as are, also, the *Several Systems* of *Nervous Mechanism* which administer to those Visions. The Three Departments of VISION ITSELF, comprising purely the COLOR IMAGES *in the Mind*, I shall here, with a view to a certain convenience in reasoning upon them, divide into the figurative Structures of Three TEMPLES: in each of which, separately taken, Man may be said to worship the Handy-work of his Creator in the formation and features of the External World; although he does so only in the beholding of *Color Representatives* of external things: And which, therefore, proves the Mind to be a MICROCOSM or Little World; which, most certainly it is, as the great Newton, and no less all the Ancient Philosophers, firmly believed. As a grand specimen of this belief; and, indeed, that which was the common source of the several creeds of the Greek inquirers; I shall here afford that Hindoo Theological Tenet, which has reached the present Epoch through the gloom of numberless ages:—"The whole of Creation is "rather an *energ*y than a work; by which, the in-

“finite Mind, which is present at all times, and
 “in all places, exhibits to his creatures a set of
 “perceptions, like a wonderful picture, or piece
 “of music, always varied, yet always uniform.”
 —This Hindoo Tenet I have supplied here because,
 when duly modified, as it certainly requires, and
admits of, it co-incides with that Cosmogony which
 demonstrably results from my *Laws of Primary
 Vision*,—a most remarkable coincidence when we
 consider that the Rationale, by which the Hindoos
 reached their conclusion, has never come down to
 us.

SECONDLY.—It is a general characteristic of the
Three Visual Departments that, each of them can
 operate by itself alone: Although they can, also,
 all operate in concert. This Mechanism is so beauti-
 fully, and wisely, as well as beneficially contrived,
 by the Allwise Architect of these Visual Temples,
 that the *Two Retinal Half-field Impressions*, after
 they have travelled backward in the Optic Trunks,
 discharge themselves upon the Percipient Mind,
 either exactly meeting, which gives Half-field
 Vision; or, else,—partially *overlapping each other*;
 or lastly, wholly coinciding, so as to occasion one
 same object.

But, Whereas the Two Grand Temples which,
 when they are operated in together, require the
 Mechanism of Half field Vision; and, in the ope-
 ration of which, we survey the Whole Sphere of
 Things; are the ordinary, and almost all in all
 Mode of useful Vision; the Third or Centre Tem-
 ple or Department, while it possesses no office of

seeing things as they are arranged in External Nature, has a Province of taking cognizance of a class of Objects which form a Special Test of the *Recrossing of the Retinal Impressions* that produce them. And this Third, or Central Temple, requires a description here.

Of Cases of Recross Vision occasioned by *Two Eyes*, from impulses of light reflected by external objects; (which cases differ from those arising from Pressure on the eye, only in having external distant Objects for their causes; whereas, a case of Vision from Pressure is not occasioned by an external object, in the ordinary sense of that phrase;) I have supplied a number, in my Rationale.—As for example,—The *two half faces* depicted on a card; and *seen as One Whole Face*:—*the Gold*, and the *Silver Coin*, placed upon the two sides of the nose; and *seen on exchanged sides in the Mind*;—The *Librating rod*:—All these, and some others given in the Rationale, are examples of Recross Vision from External Objects: and, in fact, they belong to the same class, as far as regards the manner of the Nervous Mechanism by which they are effected, as Two Peacock's Feathers seen in concert.

In addition to these given examples, moreover, I now deem it expedient to supply here, together with a *Plate* for illustration, the Case of the seen Duplicated Nose,—a case which has been discussed in my Rationale, in the remarks which I found it requisite to offer upon the Abstract published by the Royal Society, of a Paper which I had pre-

sented to that Body, describing the Phenomenon in question. The tenor of the Abstract indispensably demands farther discussion here, on account of the very extensive, and banefully prejudicial effect it must have had, during all these years, upon the Reception and Prospects of Vision in the Head.—The leading facts to state are that, on my having presented the Paper in question; it was read, and an Abstract of it was published: While some other Papers, presented at the same time, did not receive that mark of consideration. And, thus far, I consider the Paper as being duly noticed.—But, it remains to state that, the Functionary, who made out the Abstract, has *nullified* the contribution, by mentioning it as an example of the Principle of Visible Direction. And this mistake, has dealt a virtual death upon Cerebral Vision, in the hearing, and the view, of all the Members of the Royal Society; since it is manifest that, from the tenor of the Abstract, every one must suppose that the phenomenon of the *Duplicated Nose* is only curious; and not very important.

Nevertheless, I am Persuaded that the evil so falling upon my labors and prospects was the pure result of a belief, in the mind of the Functionary, in the exploded principle in question: And was not with any desire to my prejudice. And, accordingly, I shall here, with all due candor, point out such an amount of fallacy in the optical views of the Functionary, as could not fail to place his reasoning out of the Subject, even if we were, for the present moment, to suppose the Principle of

Visible Direction as real, and effective, as he could desire it to be.

Thus, If we suppose the Vision of *One* of the Two Noses to be explained on the Principle of Direction :—And, then if, altogether apart from this first explanation, we explain the Sight of the *Other* on the same Principle :— In this case, the supposed Principle of Direction has exhausted all its efficacy, and all its applicability ; and there is nothing more for it to do in this Problem. BUT, there is vastly more to do, before the Problem in question is solved. In a word the Functionary has overlooked that, not only has each of the noses to be accounted for, as to its mere Direction ; but, in addition to this, we are to observe that each of the seen noses is *transposed beyond* its Fellow Nose in our view : and we see each Nose apparently through the other. The two noses, so seen, are of course not the external nose ; but, are Two Color Image Noses in the Mind. But, according to the exposition given by the Functionary, it must be Two *Real External* Noses that we see : while each Nose stands interposed, as it were a wall of brass, between the Eye that really sees it, and the Nose that is seen.— In fine. No demonstration can be more conclusive, in any case, than the certainty that it is impossible that the seen two noses can be any other than Color Images in the Percipient Mind.

Now, if we consider the Functionary as being borne out by the general opinion of the day, in applying the Principle of Visible Direction to solve the Problem of the Vision of each eye separately

taken ; it cannot, for a moment, be pretended that this assumption can absolve him from the main and essential task of fulfilling the whole demand of the actual Problem in question, namely, to explain by what means we see one of the noses *through* the other. It is certain that the Functionary, (even supposing the Principle of Visible Direction to be a true principle,) has only explained one half, and this by far the *lesser* half, of the problem. And, although I am satisfied, the Functionary did not thus view it : it is certain that it can be no better than a mock exposition, that leaves the more important half of a case to be explained.

It follows, then, that my labor has been sacrificed to the operation of a mistaken view of the Subject during SEVEN most wearing years, in an unintentional, but baneful, misapprehension by a Functionary of the Royal Society,—a most unfortunate accident, which, thus far operating together with the Exterminating Report given by my Critic in his “Journal of Science,” has wrought a ruinous result upon an Individual, as well as on the Present state of Optical Philosophy.

If the Functionary, in question, be not Dr. Roget ; as I still suppose it is from the fact of his now giving public Lectures on Optics in the Royal Institution ; it is in his option to disavow the thing and I shall owe to him due apologies : Otherwise, most certainly, I shall hand down this History to a fair-judging Posterity.—But, whoever was the party ; I have sincere pleasure in doing justice to the fairness, as well as the good taste, with which he

has introduced, into the Published Abstract, my Analogy of the *Steerage of the Mind, by means of the Three Mariner's Compasses*. That the quoting of this illustration of the subject must have been pure, from any malevolent wish toward the author of it, is manifest.—In my remarks on the Abstract, in my Rationale, I have objected to more than one of the interpretations of the Functionary. But, I here readily allow for the haste, in which I suppose such Abstracts are made up.

And now, under measureless detriment, arising from the mistake in question ; which misapprehension every honorable mind must desire to remedy whenever it is in its power ; I call upon this Functionary, in a liberal spirit, to set the matter right in the face of the Community ; either by explaining *upon what operation of the Principle of Visible Direction the ONE Nose is seen THROUGH the OTHER* : Or, else, by recognising the truth of Vision in the Brain.—And here I explain that I do not call upon him as a Functionary, or a Member of any institutional body : but I call upon him as a Member of the Great Community of the Human Race ; to which, both he and all men primarily belong. I have inserted the name of Dr. Roget among those to whom I have addressed this Appeal ; Which, certainly, I would not have done, if I had not deemed him morally fit to act as a juror in this case. My intention, here, is to render him justice. And my resolve is that Posterity shall render him no less.

To turn, now, to the case of the DUPLICATED

Nose :—The Phenomenon of the Duplicated Nose may be called *every man's example of Recross Vision*: Because, although it seems hardly less than miraculous that the earlier Opticians did not observe this fact; (and I confess it never fell to my own observation to note it, until I engaged in optical pursuits;) still, it is a Phenomenon which is most readily discernable, the moment it is pointed out. At the time when I made this Phenomenon the subject of my paper to the Royal Society; I deemed it not the most important fact of the same class. But, since then, I have considered it fit to take the lead, in the demonstration of Recross Vision, especially on account of its popular obviousness, the moment the attention is called to it. And, I have given it the preference here.—In the PLATE, then, which I have here supplied for illustration, we see the fact represented, of *the Two Color Image Noses* standing upon exchanged sides in the Mind; although, we do not know either the PLACE, or the MANNER, of the recrossing of the respective Retinal Impressions as they travel backwards from the Eyes. But, I repeat, here, that the recrossing is a fact of the highest certainty, inasmuch as we see one of the apparent external Noses through the other; Which, be it observed, cannot be mentioned too often, considering the immeasurable consequences which depend upon it.

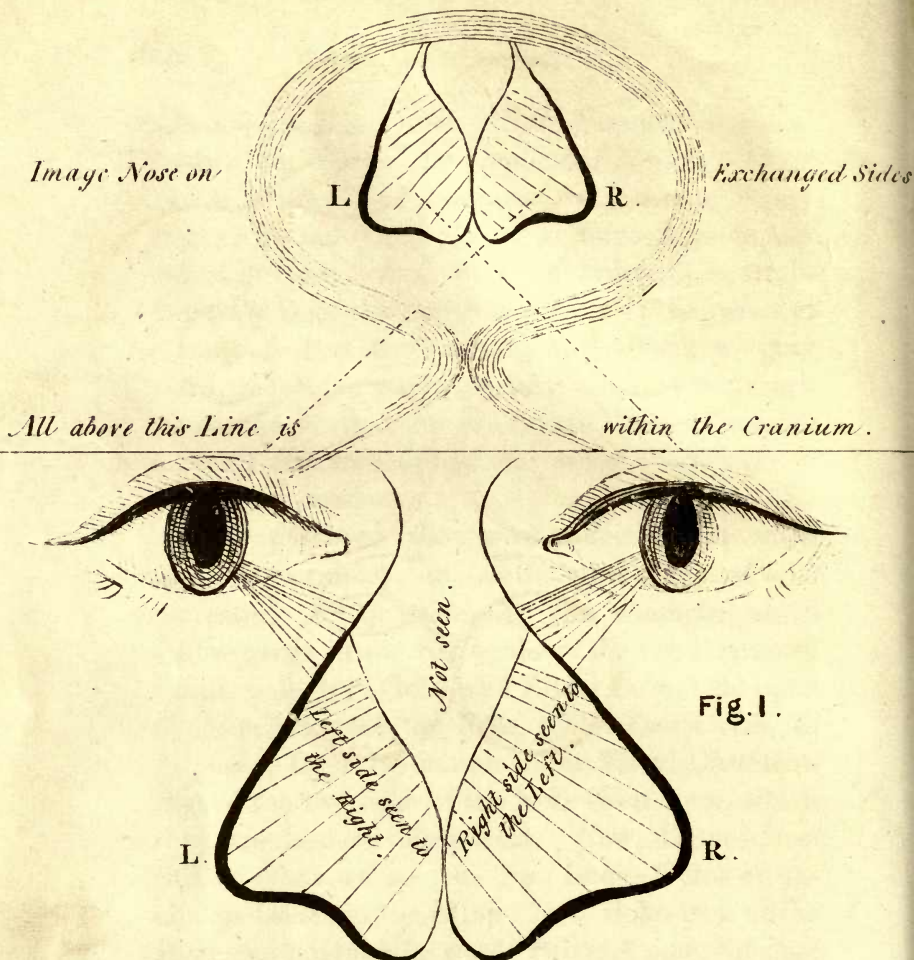
Being hitherto in the dark with regard to the *Place*, and the *Manner*, of the recrossing of the Retinal Impressions; all that we certainly know in

this case, is that we see a Nose Duplicated : And farther know that this *Duplicated Nose* is a *Color Image* in the Mind ; because our Sense of Touch informs us, indubitably, that we have only one real external Nose. And here, in order to ascertain critically that the duplicated Nose is the result of a recrossing of the retinal impressions ; we may *mark either side of our proper nose* ; and, by that mark we can know that the two Image Noses we see are a result of a travelling backward of the respective retinal impressions.

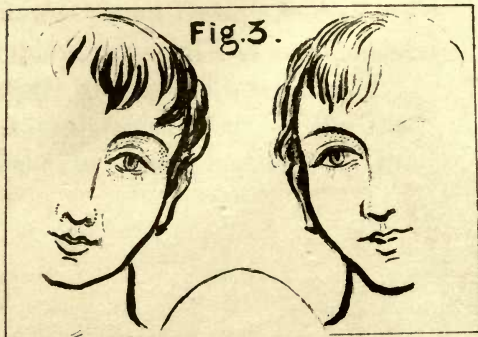
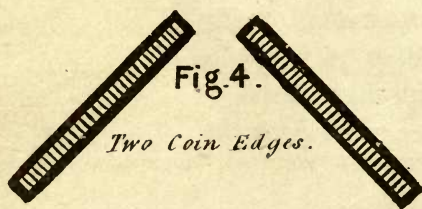
But, perhaps, the most effective or satisfactory example, to settle the fact of the recrossing in question, is the example which I have given in the Rationale of the two Recrossed Coins, namely, a Gold, and Silver Coin, held upon opposite sides of the Nose. The Two Coins, so disposed, form in fact no other Visual Case than that of the two sides of the Nose itself upon which they are respectively placed. Now, the result of this is, that we see the Two Image Coins on exchanged sides in the Mind : and, if we look at the Plate, we can read the word “Silver,” upon the one ; and the word “Gold,” upon the other. And thus, the fact of the recrossing of the Coins rests upon the highest certainty. In fact, the recrossed coins, and the recrossed Noses, are only two different illustrations of one same Visual Case. And, if we please, we may employ two real Coins ; instead of referring to the *Plate* given for illustration.

Along with this example, and *Plate*, of the Duplicated Nose ; I have here supplied that of the

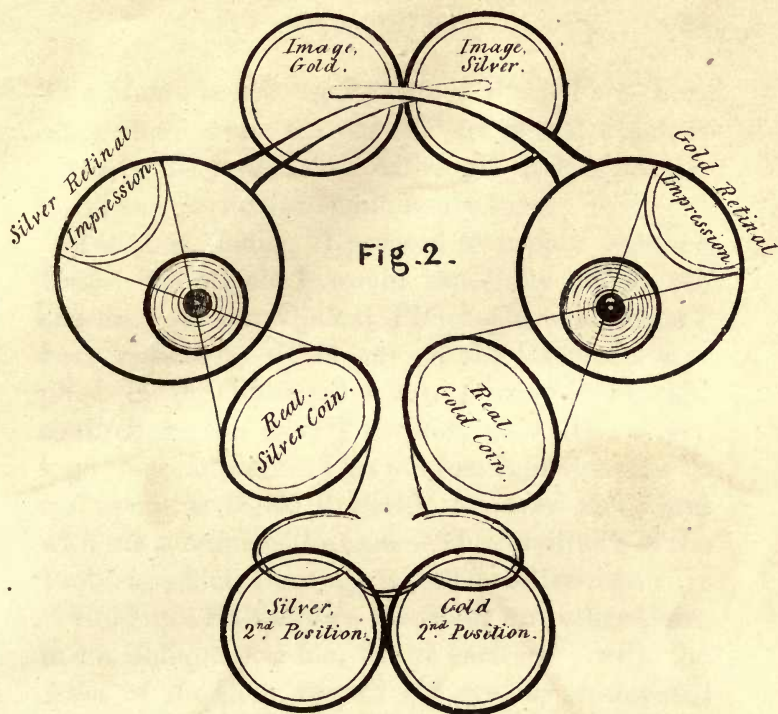
PLATE TO ILLUSTRATE THE APPEAL TO PHILOSOPHERS.



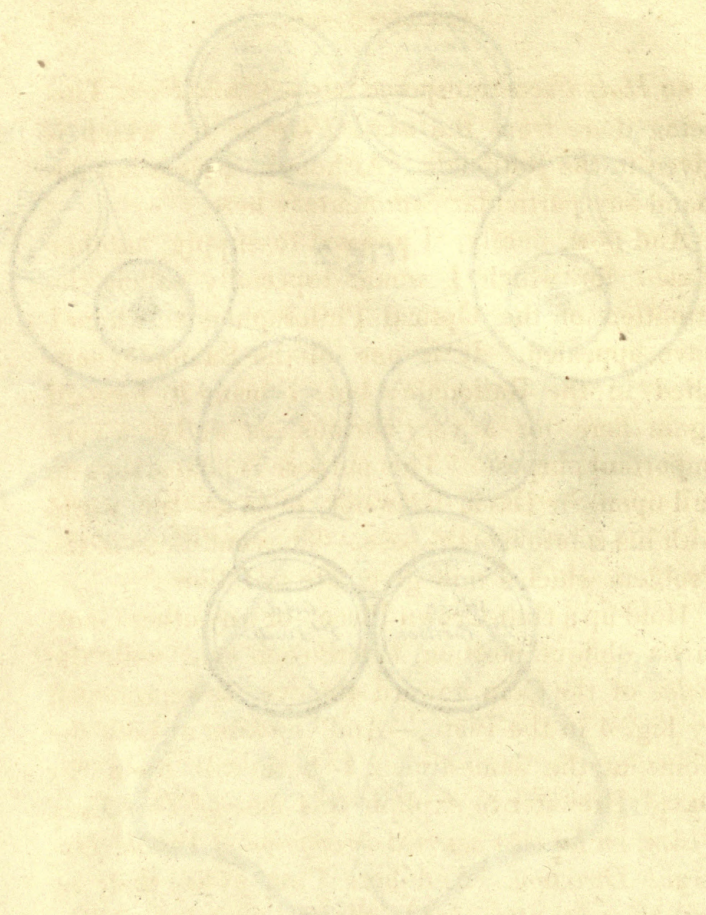
EACH side of the seen Nose APPEARS THROUGH the other, because it is NOT THE EXTERNAL NOSE that we see; but it is the TWO IMAGE NOSES, ON EXCHANGED SIDES in the sensorium .



THE IMAGES CHANGE SIDES IN THE BRAIN .



Although the example of the DUPLICATED NOSE is supplied here, for reasons explained ; I have always deemed the TWO REGRESSED COINS THE MOST EFFECTIVE . — Let any person therefore show, ON THE ASSUMPTION OF VISIBLE DIRECTION, how the Two Coins are SEEN ON EXCHANGED SIDES : And, if this be done, then, Vision in the Head is a Fable . But, if this cannot be shown, then Philosophers are bound to embrace Vision in the Head, for the honor of their Country . — And, here, THE TWO CONTENDING SCHEMES ARE AT ISSUE .



Two *Half Faces* transposed into a *Whole Face*. This being done from the same *Plate* as that which is given in the *Rationale* : Although, it does not demand any particular commentary here.

And now, finally, I proceed to supply another Case : for which I would especially solicit the attention of the Optical Philosophers to whom I have appealed. It is one of the Examples supplied in the *Rationale* : but, I bring it forward again here for a very curious, as well as a very important purpose. This purpose is no less than to call upon Sir David Brewster, to favor the world with his solution of the case.—The conditions of the Problem which I now give, are as follow :

Hold up a Half-Crown Piece, or any other Coin, in an oblique position, before each eye ; with the *Edge* of the Coin toward the eye, as represented by Fig. 4 in the Plate.—And, looking at both the Coins at the same time ; I here call upon Sir David Brewster to explain this case of *Two Eyed Vision*, on his own asserted assumption of *Visible External Direction*. And here I am aware that, he has *never yet attempted* to explain *any* case of *Two Eyed Vision* : but, has avoided this at all events. But it is obvious that he *MUST*, in the present case, *repeat the very same exposition* which he has already given in the case of the two words—“*COACH HORSES*,” in his Critique on my *Rationale*.

Supposing, then, this Optical Functionary to have taken up the solution with all confidence ; and this, in the presence of a Philosophical Audience ; I shall next suppose that, after affording to that

Audience the Legerdemain of reasoning upon a Visual Principle which has been over and over again held up to utter rejection; he considers his office ended; and looks round him for applause.

The approbation, which he thus expects, would be given to him if there were any persons present who still believed in the exploded Principle of Visible Direction. And these persons, indeed, might be not a few. But, it matters not to the Subject how many might yield their assent. Because, I have an overwhelming objection to put in here: upon which, I am willing to hazard the whole of Recross Vision. The fact is that, the Functionary has not yet *meddled at all with the Gist of the case*. He has performed *his device upon each* of the Two Coins, as they are situated at about two inches asunder. But I ask him, *What is the OBJECT which he SEES in this case?* It is not Two Separate and far-apart Coins. But, infinitely foreign to this, the OBJECT which he SEES is a CROSS: *The two far-separated external coin edges having COALESCED into ONE SAME OBJECT!*

At this stage of the present Appeal, Need I ask: Where is the Cross that has resulted from a Vision of the Two Separate Coins?—And here, I might address this Optical Expositor, who has heaped upon all my labors, with indiscriminating proscription, a most intolerable tide of unqualified contumely: and ask him, In what terms, either of confident defence, or of due acknowledgment of error, he would stand before his auditory?

As for the Place, and the Nature, of the SEEN

CROSS : After all that I have advanced on the Subject, it can hardly need being explained here that, the Two Coins being about two inches apart ; this is about the ordinary Lateral Distance which occasions the phenomenon of the *Single Vision of an Object with both eyes*. Accordingly, therefore, the CENTRE of each Coin Edge falls upon the Centre of the Retina that is opposite the edge of the Coin. And, if it were the faces, instead of the edges, of the Coins, that presented themselves to the eyes ; in this case, we should see only the Face of *One Same Coin*.

The Rationale, of the formation of the IMAGE CROSS IN THE MIND, is here complete. And the Rationale of Cerebral Vision is complete along with it.

It now remains to say a word on the predicament in which my Chastiser has placed himself, in this supposed but unavoidable exposition.—It is not my nature to feel pleasure in contemplating the state of a fallen man, even if that man owes his fall to his own aggression ; and, that aggression was against myself. But, What excuse can my Chastiser plead in this case ? It was not as if his foot had unfortunately slipped in treating a mere isolated Paper, which described only some single Phenomenon. On the contrary, my Critic had my Whole Rationale of Cerebral Vision to range, and revel in. And the explanations, of the Recrossings of Objects, were all round him, to take note of.

The question of wonder then is, What was it that blinded my Critic to all those proofs of the Subject ? This question, let others judge. And

let Sir David Brewster, as he may, redeem himself out of a *Dilemma of Two Questions*, between which he has placed himself,—namely.—Whether he is to be set down as having proceeded under a want of the *Optical Acumen* requisite for comprehending my *Fourth Mode of Vision*, although he expressly appealed to it: Or, rather, under a fixed aversion from CEREBRAL VISION, as being the production of one who had thus crossed the path of his ambition, — DOUBLY crossed his ambition, — *First*, and especially, in having put in a bar against his *Pneumatology in the Eye*: And, *Secondly*, upon the ground of my having snatched, from his Wish, the Province of Vision in the Head?—Let all honorable minds speak to this. And, especially, Let the Philosophers of Britain speak to it.

THE OPTICAL DOCTRINE OF VISIBLE DIRECTION, IS A DOCTRINE OF THE PERCEPTION OF THE EXTERNAL WORLD; being, generically, no other than the Reideian Theory of Perception.

In our ordinary Treatises of Optics, Writers confine their Subject to the Mechanism of Light, real or supposed; and to process between Light and the Eye:—And, do not concern themselves about any COSMOGONY OR SYSTEM OF THE UNIVERSE; which last, nevertheless, must administer to the act and process of Vision.—In a word; it is not supposed that *Opticians* have any need to be *Me-*

taphysicians. And there appears to be but a very secondary respect, if any at all, paid by the former to any consideration BEYOND the mere assumption of the nature of light, and of its mechanical operation. Accordingly; I suppose it will fall with great surprise; and no less incredulity with many at the first moment; when I announce here, that the Optical Doctrine of Visible Direction is no other than a Doctrine of the Immediate Perception of the External World. To what a degree the last mentioned doctrine has fallen into nothingness in the instance of the Reideian Instinctive Theory, I need not here insist. But, at the same time, it is not the less true that the Cosmogony or System of the Universe of Reid's Theory *exists and reigns triumphant, at this hour, in the current Optics of all British Writers.* The fate of Philosophy, in exhibiting this overwhelming upshot, as a Substitute for the Optics of Newton, is deeply to be deplored by those who have the national fame at heart. But the fact, which I thus point out, is not for a moment to be denied. And I now proceed to illustrate it.

Previously to my going into the main Subject; I observe that, the SCIENCE OF OPTICS *is the GATE OR PORTAL by which, and which alone, we can IN THOUGHT enter the GRAND TEMPLE OF THE UNIVERSE.* Hence; to have a false system of Optics; and, along with this, to have a true System of the Universe, is a thing impossible. Let us now therefore turn, and attend to the Origin, and Nature, of the SCHEMES of the Universe (*for there are two of them*)

that have in succession been started, and upheld, in the extant Optical Systems that have appeared in the world.

ONE of these Systems is the produce of the genius of Sir Isaac Newton; and, is expressed by him in the following terms:—" And these things
 " being rightly despatched; Does it not appear
 " from the phenomena that there is a Being, incorporeal, living, intelligent, omnipresent; who
 " in infinite space, as it were in his *sensory*, sees
 " the things themselves, intimately and thoroughly
 " perceives them: of which things, the IMAGES
 " ONLY, carried through the organs of sense, into
 " our *little sensoriums*, are there seen and beheld
 " by that within us which perceives and thinks."

Before I proceed farther with the Subject; I seize upon the moment to avow that this combined Pneumatology and Cosmogony of Newton is that to which I have all along yielded my own credence: And which I have labored much to prove and promulgate. — Of other British Writers; it is almost unnecessary to say, it was the creed of Locke; and, of every other British Philosopher; the School of Reid alone excepted.

If we turn from our own Country, and look toward the French Optical Writers; who, it will be admitted, have done their part in this Science; they have followed the Views of Newton on the subject. Their usual phraseology is, as to "*How the SOUL sees:*"—By which, they meant that the *Soul sees Species or Images, and not external things.*

And, if any change has taken place among the French Writers, by which they have cashiered the Philosophy of Newton; I am not aware of the fact.

Turn we now, therefore, to a NEW ERA in Optical Philosophy. And let us mark IN WHAT SORT Philosophy has *advanced*, with advancing time, since the days of Newton. And first, Let us here premise that, the most prominent, and all-important consideration, in establishing a Science of Optics, is the fact, universally recognised on all sides, that the Retinal Impressions of Light, reflected from External Objects, FALL INVERTED ON THE RETINA. And it followed, therefore, that to account for the RECTIFICATION of Visible Objects was the grand desideratum, and difficulty, in Optics. It had previously happened that Newton, and Briggs, and their illustrious Associates, had tried, and entirely failed in their attempts, to show that the Impressions on the Eye were *Recrossed in the Nerves or Brain*. But, they have left behind them, together with PLATES to illustrate their creed, the testimony of their confident belief that such is the fact in nature; though then undiscovered by any Optical, or any Physiological proof!

It was in this state of the Subject that the ingenious Bishop Berkeley started his Hypothesis of the *succumbing of our Sense of SIGHT, to our Sense of TOUCH*. And, as it was assumed, or taken for granted, that our Sense of Touch apprehends external objects ERECT, as they are in nature: And, Touch being asserted as being *much earlier in*

the general field of perception, than Sight ; it was proposed by Berkeley, that the Mind reverses the Visual acts of the Retina ; and sees those Visual Objects AS ERECT, which the eye itself reports inverted. But this Hypothesis, although it was proceeded upon by some few, revolted the judgment of thinking men, as was fit it should do. And thus, the Optical World was still left at sea, in a most uncomfortable state of doubt on the question.

It was thus when the optical community was low in hope of the subject, and was ready to grasp at any alternative that should possess any color of accounting for the rectification of the retinal impressions ; that Dr. Porterfield, (who has written largely upon Optics,) put forth his speculations on the VISIBLE DIRECTION OF OBJECTS : In which, he argued that, we see an object in the Direction of that Straight Ray of Light, which falls from that object PERPENDICULARLY on that point of the retina which receives the ray.—Now, with regard to that new doctrine of the subject ; previously to my going farther, I shall merely observe that, I have devoted a large feature of my *Rationale* to show that the thing is demonstrably void of truth. To which notice I here add that, after seven years of additional deliberation on the subject, I have no wish to emend, or alter, what I have therein advanced. And, certainly, I would refer to the *Rationale*, as conclusive of the subject.

But, as for the supposed Principle of Visible Direction ; and its acceptance in the Optical World : — It seems to have all at once blazoned forth, as if it

came by some revelation, and not from any human authority: And, in effect, it laid the genius of Newton prostrate in the dust. And it is certain that the COSMOGONY, *along with the OPTICS*, of Newton was merged in the supposed Superior Genius of the DISCOVERER of VISIBLE DIRECTION.

By some strange fatality, however, this Discoverer is *never named as such*. No statues are erected to his honor. Nor does his name fill the world, as that of the Master Hand which showed us the Nothingness of the Philosopher of Light and Colors. We are therefore here urged to ask: Whence could arise this COYNESSE in the matter? Wherefore is the Name of Newton's Vanquisher kept so profoundly out of sight that, I believe, no Treatise on Optics blazons it forth. There must be some reason for this counter practice, which differs from that of the world with regard to discoverers of the first magnitude: Among whom, Dr. Porterfield must rank, if he be rated as having exploded the Cosmogony or System of the Universe, not only of Newton; but, equally, of all Philosophers, Ancient and Modern; who have all held that we perceive IMAGES OR SPECIES, *of External Things, and NOT external things themselves*.

At any rate; certain I think it is that those Writers on Optics, who proceed upon the Principle of Visible Direction, never express so much as a hint of our seeing the External World. They confine themselves, strictly, to our seeing External "DIRECTION." They do not go farther out, in Space, than DIRECTION. And they leave PHILOSOPHY, (as

distinguished from mere *Optical Science*,) to get out of the scrape as it can. But, in this, let us observe the effect of the *Optical* speculations of Dr. Porterfield, on the *Pneumatological* proceedings of Dr. Reid,—the Author of the *Metaphysical* doctrine of the perception of the External World. Dr. Reid, in his “*Inquiry into the Mind*,” says, that he “HONORS DR. PORTERFIELD for the discovery” of Visible Direction.—Now, by the way, I am so far from honoring him on that score, that I confidently view him as being the unintentional author of the most deplorable degradation that ever befell the philosophy of an enlightened people. But, as for Dr. Reid ; What is of primary importance, with regard to his proceeding in this Case, is the fact that Dr. Porterfield’s view of the subject played, most effectively, into the hand of the *Reideian Theory of Perception*. It was therefore highly natural that Dr. Reid should “*honor*” Dr. Porterfield, for so great a lift, in so heavy a case. And Reid cannot be considered in any other light than as a partizan, even if we suppose that he was not aware of any intention to misstate the merits of the subject.

To the Philosophers of Britain, then, I here appeal : and ask of them ; Will they accept the Optics and the Cosmogony, both in one, (for they cannot be divorced), which assumes that we see the Things of the External World directly, immediately, intimately ; since it is one of the plainest of truths that, either we do see those things ; or else, we cannot see their Direction.

Here, I trust, the Principle in question cannot be misapprehended. The External Direction of Objects

from the Eye, is a true principle. And the only point herein maintained, in opposition to the current doctrine of the subject, is that *External Direction* is NOT SEEN. Its Existence is known only by a *deduction of our reason*, or, in other words, it is one of the *Hypotheses* which make up the ordinary laws of Optics. The case is that, when we have assumed the nature of Light as moving in straight lines; it follows that the rays of reflected light, coming from an external object, are compressed together as they enter the pupil of the eye: while, the extremes or ends of these rays diverge each way: And the ends, one way, impress the Retina; while the other ends are diffused over the reflecting Object. This is the hypothesis which our reason presents to us of the Subject. BUT, *reason does but reason: reason does not see*. And even, if reason did see; it could not see the *point of a ray of light*, which ray itself is not an hundredth part so thick as a hair. If it were at all supposeable that we could see *either* end of a ray of light; it would be that end which *pricks* the retina. But the best ascertained principle in Optics is that the Retinal Impressions of Light stamp an *inverted* picture on the Retina. And one, of two consequences, follows with mathematical certainty—namely—that, either the *erected objects* which we *see* are the *External Things* which reflect the light; or, else, are Color Images in the Mind.

By the way; I may add to what is now said, that the Science of Optics is made up of Two Classes of most different things—namely, of Phenomena or Appearances; And, of *Hypotheses*, to account for these Appearances. Now, nothing can be more

deplorable than to confound the two Classes of Propositions in question. But, *the point of a ray of light makes no Appearance*: It is not a Phenomenon. It is only a creature of our reason, to account for Appearances.

It would, certainly, seem that the optical community is not aware that the OPTICAL Creed which we entertain, whatever it is, or can be, involves the COSMOGONICAL SCHEME OF THE UNIVERSE. But, that it does so; and, that the Two Subjects cannot be divorced; is certain, beyond a demur. So certain, indeed, is it; that I may leave it here for a Maxim of the Subject,—*Tell me your OPTICS; and I will tell you your SCHEME OF THE UNIVERSE.*

Most certainly, then, I would rouse the attention of my Country, to a sense of the state of philosophical degradation into which it has fallen, in bearing the yoke of ASSUMED VISIBLE DIRECTION. But, my means of so doing are now exhausted. All the means which I have employed, in all these years, are exhausted; and are hitherto sacrificed in vain; producing no other result than my own bane, in all the shapes of privation of whatever renders life desirable. In this case, therefore, I would suggest, to any Functionary of the Subject who is situated as is Dr. Roget; whom, in particular, I name here inasmuch as I have already been led to mention him as the supposed Critic of my Paper to the Royal Society: and which, if he be, makes him the Precursor in any case of discussion of the subject. Certain, at any rate, it is, that Dr. Roget, advantaged by his Position in the Optical World, has it in his option to be the foremost

Member of the Royal Society to rescue our Country from the degradation of bearing the yoke of Visible Direction ; and, from thus exhibiting Britain to surrounding Nations, and to Posterity, as being in rebellion against Newton and his Optical Associates.

The importance of POSITION, in this case, is all in all ; as my situation proves, in a melancholy extent. And, such is its overwhelming power, that I may doubt whether any one of the Philosophers, to whom I now appeal, ever cast an eye over my Rationale, after they saw it scathed and exterminated in the "Journal" of a highly accredited Optical Functionary. Hence, certainly, I would urge Dr. Roget to discharge a bounden duty to his Country, by setting forth the real merits of the subject. In so doing ; it could detract nothing from him if he has misconceived the truth by explaining a fact of Vision on the erroneous principle of Visible Direction. Because, therein, he proceeded upon an accredited principle of the day. The only thing that can attach demerit, in such a case, is if any one, with full proofs of the truth before him, shall suffer his Country to labor under reproach : and an individual to perish in extremity, under his misconception of the subject ; And *still refuse to make concession* on the side of truth.

In the outset of this Appeal ; I intimated my intention to avail myself of my long acquaintance with Pneumatology, to render the Thing a Brief Compendium of the Basis of that Science.—And, I trust, I have redeemed my pledge.

CONCLUDING ADDRESS.

To the Philosophers, to whom the foregoing Appeal is addressed, I now, with all due deference, look for a Judgment on the Case. And, in so doing, I humbly conceive, it divides itself into two several considerations.

First.—Although it is, certainly, by far the least important consideration, it involves the hopes of an Individual who has employed a life in the ardent pursuit of Philosophy, equally ungaining, and unseeking, any reward other than that which he now seeks—namely—that he may be of use in his generation; and, that he may be recognised, in order that he may be of use.

Secondly.—But the Case in question imports, most seriously, to both the Philosophical Interests, and the Fame, of the Country in which this Scene is exhibiting in the face of surrounding Nations. And this import must be immeasurably augmented by the transit of the Subject to the Ordeal of future generations; which, will surely adjudge it.

The first of these two considerations appeals to your Justice, including also your Philanthropy. —But the second involves no less than the Honor of your Country,—that Honor, of which you are

the Guardians in the Department of Philosophy:— And, within whose Jurisdiction, alone, the case can receive its decision.

In a matter which so deeply involves both private right and public weal ; it is manifest, that to preserve an emphatic silence, would be virtually to pronounce your Dissent from the claims of Vision in the Brain. While, upon the other hand, your express Assent would be indispensable to convey to the World your acknowledgment of the validity of that labor. Indeed, from the enumeration of Names in the Title Page ; and from my resolve to forward Copies of this Appeal to all the Names in question ; I intend that it shall be taken, hereafter, for a decisive record of Dissent on the part of those who shall not deem fit to express the contrary. It is most fit that Posterity should know what they owe to us, in our generation. In the event of Assent, however, there can be no difficulty in the case ; since it cannot be doubted, but the Public Press would liberally afford its gratuitous service, by the insertion of ten, or a dozen lines ; Which extent would suffice to convey a GENERAL assent, on the part of those whose time might not conveniently afford a more extended commentary.

To the Philosophers now addressed, therefore, I am urged by all that I have suffered ; and, must continue to suffer so long as this injustice and life endure together ; to represent to them that a great Wrong cries aloud, for redress ; And, that the power of redress resides in their option.

If it shall be said that, provided my labors are

founded in truth; in which case, alone, I can claim the justice which I ask ; they will infallibly receive their due Sentence, of a future generation ; On this coming event I repose the most perfect reliance. But, in the meantime, I am immersed in the Coil of Human Nature. And, am daily enduring evils, which make life itself an evil under an exclusion from both the habits, and the hopes, of being useful in my generation. And, the thought of which exclusion is aggravated, unceasingly, by reflecting on the reason of it,—namely—not any operation of law ; or, of any power at all salutary in a well regulated community. But, on the contrary, a Power of Exclusive Position : Which can arbitrarily effect my ruin, unchallenged by any other Authority : And which has actually put me out of the pale of existence, in the face, and under the inadvertance, of a great and enlightened nation.

In my devotion to the present, and to other kindred subjects ; I have sacrificed, in addition to health and life, a large proportion of fortune. But, the last mentioned sacrifice, though I feel, I reckon not on my own account.—I ask of no man to repair my fortune.—But, I ask of my Country to repay me, by its recognition, what it owes me : and the payment of which might possibly give me additional life, to accomplish labors that have long been partly digested ; but whose completion must be impossible under a death-like existence.

What indeed, I may ask, is left for one, whose foreclosed exclusion, from his proper class in the community, leaves despair to spurn at all the at-

tempts of resolution to prosecute his course ? And thus, even if life should be given, I am doomed to endure it under a privation of habits which I have long since identified with pleasure, no less than with pride, and even with tolerable existence.

Such is the state in which I look up for the Justice of my Country. And it is only left for me to hope ; (as I have fully evinced, herein, that I do hope ;) that those, whom I address, are duly impressed with a sense of that responsibility which all owe to a Higher Judge : Before Whose Unerring Tribunal all must stand, at no distant day.

THE END.

rights of resolution to prosecute his course. And
that, even if life should be spared, and I should
be enabled to undergo a further trial, I should not
have long since identified with persons, who
then were judges, and even with terrible
juries, and I should have been in the
same state in which I look up for the
future of my Country. And it is only for the
future that I have fully convinced myself that he
deserves that those whom I address, are duly im-
pressed with a sense of that responsibility which
is due to a higher Judge. But, when I
say, I shall all must stand, or no stand, my

CHELSEA:

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